ThinkPad Computer Hardware Maintenance Manual

April 2008

This manual supports:

ThinkPad R50e Series
(MT 1834, 1842, 2670)
ThinkPad R51e Series
(MT 1843, 1844, 1845)
ThinkPad R52 Series
(MT 1846, 1847, 1848, 1849, 1850, 1858, 1859, 1860, 1861, 1862, 1863, 1870)
ThinkPad Dock II (MT 2877)

Note

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 263.

Second Edition (April 2008)

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About this manual

This manual contains service and reference information for ThinkPad® R50e series (MT 1834, 1842, 2670), R51e series (MT 1843, 1844, 1845), R52 series (MT 1846, 1847, 1848, 1850, 1858, 1859, 1860, 1861, 1862, 1863, 1870), and ThinkPad Dock II (MT2877) products. Use this manual along with the advanced diagnostic tests to troubleshoot problems.

Note

MT 1850, 1862, 1863, and 1870 are special bids. For information on how to locate service parts, refer to "Strategy for replacing FRUs for CTO, CMV, and GAV" on page 4.

The manual is divided into sections as follows:

- The common sections provide general information, guidelines, and safety information required in servicing computers.
- The product-specific section includes service, reference, and product-specific parts information.

Important

This manual is intended for trained service personnel who are familiar with ThinkPad products. Use this manual along with the advanced diagnostic tests to troubleshoot problems effectively.

Before servicing a ThinkPad product, be sure to review the safety information under "Safety notices: multilingual translations" on page 8, "Safety information" on page 20, and "Laser compliance statement" on page 26.

Introduction

Important service information

Important

BIOS and device driver fixes are customer-installable. The BIOS and device drivers are posted on the customer support site http://www.lenovo.com/think/ support

Advise customers to contact the Customer Support Center at 800-426-7378 if they need assistance in obtaining or installing any diskette fixes.

Customers in Canada should call the Customer Support Center at 800-565-3344 for assistance or download information.

Strategy for replacing FRUs

Before replacing parts

Make sure that all diskette fixes are installed before replacing any FRUs listed in this manual.

Use the following strategy to prevent unnecessary expense for replacing and servicing FRUs:

- **If you are instructed to replace a FRU but the replacement does not correct the problem, reinstall the original FRU before you continue**.
- Some computers have both a processor board and a system board. If you are instructed to replace either the processor board or the system board, and replacing one of them does not correct the problem, reinstall that board, and then replace the other one.
- If an adapter or a device consists of more than one FRU, any of the FRUs may be the cause of the error. Before replacing the adapter or device, remove the FRUs, one by one, to see if the symptoms change. Replace only the FRU that changed the symptoms.

Attention: The setup configuration on the computer you are servicing may have been customized. Running Automatic Configuration may alter the settings. Note the current configuration settings (using the View Configuration option); then, when service has been completed, verify that those settings remain in effect.

Strategy for replacing a hard disk drive

Always try to run a low-level format before replacing a hard disk drive.

Attention: The drive startup sequence in the computer you are servicing may have been changed. Be extremely careful during write operations such as copying, saving, or formatting. If you select an incorrect drive, data or programs can be overwritten.

How to use error messages

Use the error codes displayed on the screen to diagnose failures. If more than one error code is displayed, begin the diagnosis with the first error code. Whatever causes the first error code may also cause false error codes. If no error code is displayed, see whether the error symptom is listed in the Symptom-to-FRU Index for the computer you are servicing.

Strategy for replacing FRUs for CTO, CMV, and GAV

Product definition

Dynamic Configure To Order (CTO)
This provides the ability for a customer to configure an IBM® solution from an eSite, and have this configuration sent to fulfillment, where it is built and shipped directly to the customer. The machine label, PC Entitlement Warehouse (PEW), eSupport, and the HMM will load these products as the 4-digit MT and 3-digit model, where model = “CTO” (Example: 1829-CTO).

Custom Model Variant (CMV)
This is a unique configuration that has been negotiated between IBM and the customer. A unique 4-digit MT and 3-digit model is provided to the customer to place orders (Example: 1829-W15). A CMV is a special bid offering. Therefore, it is NOT generally announced.

- The MTM portion of the machine label is the 4-digit MT and 3-digit model, where model = “CTO” (Example: 1829-CTO). The PRODUCT ID portion of the machine label is the 4-digit MT and 3-digit CMV model (Example: 1829-W15).
- The PEW record is the 4-digit MT and 3-digit model, where model = “CTO” (Example: 1829-CTO).
- eSupport will show both the CTO and CMV machine type models (Example: 1829-CTO and 1829-W15 will be found on the eSupport site.)

- The HMM will have the 4-digit MT and 3-digit CTO model only (Example: 1829-CTO). Again, CMVs are custom models and are not found in the HMM.

General Announce Variant (GAV)
This is a standard model (fixed configuration). GAVs are announced and offered to all customers. The MTM portion of the machine label is a 4-digit MT and 3-digit model, where model = a “fixed part number”, not “CTO” (Example: 1829-F1U). Also, PEW, eSupport, and the HMM will list these products under the same fixed model number.

FRU identification for CTO, CMV, and GAV products

There are three information resources to identify which FRUs are used to support CTO, CMV, and GAV products. These sources are PEW, eSupport, and the HMM.

Using PEW

- **PEW** is the primary source for identifying FRU part numbers and FRU descriptions for the key commodities for CTO, CMV and GAV products at a MT - serial number level. An example of key commodities are hard disk drives, system boards, microprocessors, Liquid Crystal Displays (LCDs), and memory.
- Remember, All CTO and CMV products are loaded in PEW under the 4-digit MT and 3-digit model, where model = “CTO” (Example: 1829-CTO). GAVs are loaded in PEW under the 4-digit MT and 3-digit model, where model = a “fixed part number”, not “CTO” (Example: 1829-F1U).
- PEW can be accessed at the following Web site:
  `http://w3-3.ibm.com/pc/entitle`
  Click on MACHINE LOOKUP, followed by WARRANTY INFORMATION. Input the MT and the Serial number and the list of key commodities will be returned in the PEW record under COMPONENT INFORMATION.
- **Business Partners** using Eclaim will access PEW when performing Entitlement Lookup. Business Partners will enter Loc ID, MT and Serial, and the key commodities will be returned in the Eclaim record under SYSTEM DETAILS.
- Authorized IBM Business Partners can access Eclaim at the following Web site: `https://wca.eclaim.com`

Using eSupport

For Key Commodities (Examples - hard disk drive, system board, microprocessor, LCD, and memory)

- eSupport can be used to view the list of key commodities built in a particular machine serial (this is the same record found in PEW).
- eSupport can be accessed at the following Web site: `http://www.lenovo.com/think/ support`
- To view the key commodities, click on PARTS INFORMATION, then PARTS LOOKUP. Type in the model type and serial number. The key commodities will be returned in the eSupport record under PARTS SHIPPED WITH YOUR SYSTEM.

For the Remaining FRUs (the complete list of FRUs at the MT Model level)

- eSupport can be used to view the complete list of FRUs for a machine type and model.
- To view the complete list of FRUs, type in the machine type and model (Example: 1829-CTO) under QUICK PATH. Under “View by Document Type” select PARTS INFORMATION. Under “Filter by Category” select SERVICE PARTS. Under “Parts Information by Date” select SYSTEM SERVICE PARTS. The list of service parts by description, with applicable machine type model and FRU will be displayed.

Using the HMM

Use the HMM as a back-up to PEW and eSupport to view the complete list of FRUs at the MT Model level.

Important information about replacing RoHS compliant FRUs

RoHS, The Restriction of Hazardous Substances in Electrical and Electronic Equipment Directive (2002/95/EC) is a European Union legal requirement affecting the global electronics industry. RoHS requirements must be implemented on Lenovo products placed on the market after June 2006. Products on the market before June 2006 are not required to have RoHS compliant parts. So, if the original FRU parts are non compliant, replacement parts can also be non compliant. In all cases if the original FRU parts are RoHS compliant the replacement part must also be RoHS compliant.

Lenovo plans to transition to RoHS compliance well before the implementation date and expects its suppliers to be ready to support Lenovo's requirements and schedule. Products sold in 2005, will contain some RoHS compliant FRUs. The following statement pertains to these products and any product Lenovo produces containing RoHS compliant FRUs.

RoHS compliant FRUs have unique FRU part numbers. Before or after the RoHS implementation date, failed RoHS compliant parts must always be replaced using RoHS compliant FRUs, so only the FRUs identified as compliant in the system HMM or direct substitutions for those FRUs may be used.

Products marketed before June 2006		**Products marketed after June 2006**	
Current or original part	**Replacement FRU**	**Current or original part**	**Replacement FRU**
Non-RoHS	Can be Non-RoHS	Must be RoHS	Must be RoHS
Non-RoHS	Can be RoHS		
Non-RoHS	Can sub to RoHS		
RoHS	Must be RoHS		

Note: A direct substitution is a part with a different FRU part number that is automatically shipped by the distribution center at the time of the order.

Related web URLs are:

- IBM Information for Suppliers website: `http://www-03.ibm.com/procurement/proweb.nsf/ContentDocsByTitle/United+States~Information+for+suppliers`
- RoHS Directive: `http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_037/l_03720030213en00190023.pdf`
- California Senate Bills 20, 50: `http://www.ciwmb.ca.gov/HHW/Events/AnnualConf/2004/Presentation/MPaparian.pdf`

Diskette compatibility matrix

The compatibility of each of the drives with the diskettes for it is as follows:

Diskette drive	Diskette capacity	Compatibility
3.5-inch	1.0 MB	Read and write
	2.0 MB	Read and write
	4.0 MB	Not compatible

Safety notices: multilingual translations

In this manual, safety notices appear in English with a page number reference to the appropriate multilingual, translated safety notice found in this section.

The following safety notices are provided in English, French, German, Hebrew, Italian, and Spanish.

Safety notice 1

Before the computer is powered on after FRU replacement, make sure all screws, springs, and other small parts are in place and are not left loose inside the computer. Verify this by shaking the computer and listening for rattling sounds. Metallic parts or metal flakes can cause electrical shorts.

Avant de remettre l’ordinateur sous tension après remplacement d’une unité en clientèle, vérifiez que tous les ressorts, vis et autres pièces sont bien en place et bien fixées. Pour ce faire, secouez l’unité et assurez-vous qu’aucun bruit suspect ne se produit. Des pièces métalliques ou des copeaux de métal pourraient causer un court-circuit.

Bevor nach einem FRU-Austausch der Computer wieder angeschlossen wird, muß sichergestellt werden, daß keine Schrauben, Federn oder andere Kleinteile fehlen oder im Gehäuse vergessen wurden. Der Computer muß geschüttelt und auf Klappergeräusche geprüft werden. Metallteile oder-splitter können Kurzschlüsse erzeugen.

לפני הפעלת המחשב לאחר החלפת FRU יש לוודא
שכל הברגים, הקפיצים, וחלקים קטנים אחרים נמצאים
במקומם ואינם חופשיים לזוז בתוך המחשב. כדי לוודא
זאת, יש לטלטל את המחשב ולהקשיב לגילוי קולות שקשוק.
חלקי או שבבי מתכת עלולים לגרום לקצרים חשמליים.

Prima di accendere l’elaboratore dopo che é stata effettuata la sostituzione di una FRU, accertarsi che tutte le viti, le molle e tutte le altri parti di piccole dimensioni siano nella corretta posizione e non siano sparse all’interno dell’elaboratore. Verificare ciò scuotendo l’elaboratore e prestando attenzione ad eventuali rumori; eventuali parti o pezzetti metallici possono provocare cortocircuiti pericolosi.

Antes de encender el sistema despues de sustituir una FRU, compruebe que todos los tornillos, muelles y demás piezas pequeñas se encuentran en su sitio y no se encuentran sueltas dentro del sistema. Compruébelo agitando el sistema y escuchando los posibles ruidos que provocarían. Las piezas metálicas pueden causar cortocircuitos eléctricos.

Safety notice 2

Some standby batteries contain a small amount of nickel and cadmium. Do not disassemble a standby battery, recharge it, throw it into fire or water, or short-circuit it. Dispose of the battery as required by local ordinances or regulations. Use only the battery in the appropriate parts listing. Use of an incorrect battery can result in ignition or explosion of the battery.

Certaines batteries de secours contiennent du nickel et du cadmium. Ne les démontez pas, ne les rechargez pas, ne les exposez ni au feu ni à l'eau. Ne les mettez pas en court-circuit. Pour les mettre au rebut, conformez-vous à la réglementation en vigueur. Lorsque vous remplacez la pile de sauvegarde ou celle de l'horloge temps réel, veillez à n'utiliser que les modèles cités dans la liste de pièces détachées adéquate. Une batterie ou une pile inappropriée risque de prendre feu ou d'exploser.

Die Bereitschaftsbatterie, die sich unter dem Diskettenlaufwerk befindet, kann geringe Mengen Nickel und Cadmium enthalten. Sie darf nur durch die Verkaufsstelle oder den IBM Kundendienst ausgetauscht werden. Sie darf nicht zerlegt, wiederaufgeladen, kurzgeschlossen, oder Feuer oder Wasser ausgesetzt werden. Die Batterie kann schwere Verbrennungen oder Verätzungen verursachen. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Bereitschafts-oder Systembatterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.

(continued)

(continuation of safety notice 2)

**סוללות המתנה מסוימות מכילות כמות קטנה
של ניקל וקדמיום. אין לפרק סוללת המתנה,
לטעון אותה מחדש, להשליך אותה לאש או
למים או לקצר אותה. יש לסלק את הסוללה
כנדרש על ידי התקנות והחוקים המקומיים. יש
להשתמש רק בסוללה המופיעה ברשימת החלקים
המתאימה. שימוש בסוללה לא מתאימה עלול
לגרום להצתה או התפוצצות של הסוללה.**

Alcune batterie di riserva contengono una piccola quantità di nichel e cadmio. Non smontarle, ricaricarle, gettarle nel fuoco o nell'acqua né cortocircuitarle. Smaltirle secondo la normativa in vigore (DPR 915/82, successive disposizioni e disposizioni locali). Quando si sostituisce la batteria dell'RTC (real time clock) o la batteria di supporto, utilizzare soltanto i tipi inseriti nell'appropriato Catalogo parti. L'impiego di una batteria non adatta potrebbe determinare l'incendio o l'esplosione della batteria stessa.

Algunas baterías de reserva contienen una pequeña cantidad de níquel y cadmio. No las desmonte, ni recargue, ni las eche al fuego o al agua ni las cortocircuite. Deséchelas tal como dispone la normativa local. Utilice sólo baterías que se encuentren en la lista de piezas. La utilización de una batería no apropiada puede provocar la ignición o explosión de la misma.

Safety notice 3

The battery pack contains small amounts of nickel. Do not disassemble it, throw it into fire or water, or short-circuit it. Dispose of the battery pack as required by local ordinances or regulations. Use only the battery in the appropriate parts listing when replacing the battery pack. Use of an incorrect battery can result in ignition or explosion of the battery.

La batterie contient du nickel. Ne la démontez pas, ne l’exposez ni au feu ni à l’eau. Ne la mettez pas en court-circuit. Pour la mettre au rebut, conformez-vous à la réglementation en vigueur. Lorsque vous remplacez la batterie, veillez à n’utiliser que les modèles cités dans la liste de pièces détachées adéquate. En effet, une batterie inappropriée risque de prendre feu ou d’exploser.

Akkus enthalten geringe Mengen von Nickel. Sie dürfen nicht zerlegt, wiederaufgeladen, kurzgeschlossen, oder Feuer oder Wasser ausgesetzt werden. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Batterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.

מארז הסוללה מכיל כמות קטנה של ניקל וקדמיום. אין לפרק את מארז הסוללה, להשליך אותו לאש או למים או לקצר אותו. יש לסלק את מארז הסוללה הסוללה כנדרש על ידי התקנות והחוקים המקומיים. יש להשתמש רק בסוללה המופיעה ברשימת החלקים המתאימה בזמן החלפת מארז הסוללה. שימוש בסוללה לא מתאימה עלול לגרום להצתה או התפוצצות של הסוללה.

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(continuation of safety notice 3)

La batteria contiene piccole quantità di nichel. Non smontarla, gettarla nel fuoco o nell'acqua né cortocircuitarla. Smaltirla secondo la normativa in vigore (DPR 915/82, successive disposizioni e disposizioni locali). Quando si sostituisce la batteria, utilizzare soltanto i tipi inseriti nell'appropriato Catalogo parti. L'impiego di una batteria non adatta potrebbe determinare l'incendio o l'esplosione della batteria stessa.

Las baterías contienen pequeñas cantidades de níquel. No las desmonte, ni recargue, ni las eche al fuego o al agua ni las cortocircuite. Deséchelas tal como dispone la normativa local. Utilice sólo baterías que se encuentren en la lista de piezas al sustituir la batería. La utilización de una batería no apropiada puede provocar la ignición o explosión de la misma.

Safety notice 4

The lithium battery can cause a fire, an explosion, or a severe burn. Do not recharge it, remove its polarized connector, disassemble it, heat it above 100°C (212°F), incinerate it, or expose its cell contents to water. Dispose of the battery as required by local ordinances or regulations. Use only the battery in the appropriate parts listing. Use of an incorrect battery can result in ignition or explosion of the battery.

La pile de sauvegarde contient du lithium. Elle présente des risques d'incendie, d'explosion ou de brûlures graves. Ne la rechargez pas, ne retirez pas son connecteur polarisé et ne la démontez pas. Ne l'exposez pas à une temperature supérieure à 100°C, ne la faites pas brûler et n'en exposez pas le contenu à l'eau. Mettez la pile au rebut conformément à la réglementation en vigueur. Une pile inappropriée risque de prendre feu ou d'exploser.

Die Systembatterie ist eine Lithiumbatterie. Sie kann sich entzünden, explodieren oder schwere Verbrennungen hervorrufen. Batterien dieses Typs dürfen nicht aufgeladen, zerlegt, über 100 C erhitzt oder verbrannt werden. Auch darf ihr Inhalt nicht mit Wasser in Verbindung gebracht oder der zur richtigen Polung angebrachte Verbindungsstecker entfernt werden. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Beim Ersetzen der Batterie nur Batterien des Typs verwenden, der in der Ersatzteilliste aufgeführt ist. Der Einsatz falscher Batterien kann zu Entzündung oder Explosion führen.

(continued)

(continuation of safety notice 4)

סוללת הליתיום עלולה לגרום לשריפה, להתפוצצות או לכוויות קשות. אין לטעון אותה מחדש, לסלק את המחבר המקוטב שלה, לפרק אותה או לחמם אותה לטמפרטורה העולה על 100 מעלות צלזיוס. אין לשרוף את הסוללה ואין לחשוף את תוכן התא למים. יש לסלק את הסוללה כנדרש בתקנות ובחוקים המקומיים. יש להשתמש רק בסוללה המופיעה ברשימת החלקים המתאימים. שימוש בסוללה אחרת עלול לגרום לסכנת שריפה או התפוצצות.

La batteria di supporto e una batteria al litio e puo incendiarsi, esplodere o procurare gravi ustioni. Evitare di ricaricarla, smontarne il connettore polarizzato, smontarla, riscaldarla ad una temperatura superiore ai 100 gradi centigradi, incendiarla o gettarla in acqua. Smaltirla secondo la normativa in vigore (DPR 915/82, successive disposizioni e disposizioni locali). L'impiego di una batteria non adatta potrebbe determinare l'incendio o l'esplosione della batteria stessa.

La batería de repuesto es una batería de litio y puede provocar incendios, explosiones o quemaduras graves. No la recargue, ni quite el conector polarizado, ni la desmonte, ni caliente por encima de los 100°C (212°F), ni la incinere ni exponga el contenido de sus celdas al agua. Deséchela tal como dispone la normativa local.

Safety notice 5

If the LCD breaks and the fluid from inside the LCD gets into your eyes or on your hands, immediately wash the affected areas with water for at least 15 minutes. Seek medical care if any symptoms from the fluid are present after washing.

Si le panneau d’affichage à cristaux liquides se brise et que vous recevez dans les yeux ou sur les mains une partie du fluide, rincez-les abondamment pendant au moins quinze minutes. Consultez un médecin si des symptômes persistent après le lavage.

Die Leuchtstoffröhre im LCD-Bildschirm enthält Quecksilber. Bei der Entsorgung die örtlichen Bestimmungen für Sondermüll beachten. Der LCD-Bildschirm besteht aus Glas und kann zerbrechen, wenn er unsachgemäß behandelt wird oder der Computer auf den Boden fällt. Wenn der Bildschirm beschädigt ist und die darin befindliche Flüssigkeit in Kontakt mit Haut und Augen gerät, sollten die betroffenen Stellen mindestens 15 Minuten mit Wasser abgespült und bei Beschwerden anschließend ein Arzt aufgesucht werden.

אם מסך הגביש הנוזלי (LCD) נשבר והנוזל מתוך המסך בא במגע עם עיניכם או ידיכם, שטפו את האזורים הנגועים מיד במים במשך 15 דקות לפחות. פנו לקבלת עזרה רפואית אם תסמינים הנובעים מהמגע עם הנוזל נמשכים לאחר השטיפה.

Nel caso che caso l’LCD si dovesse rompere ed il liquido in esso contenuto entrasse in contatto con gli occhi o le mani, lavare immediatamente le parti interessate con acqua corrente per almeno 15 minuti; poi consultare un medico se i sintomi dovessero permanere.

Si la LCD se rompe y el fluido de su interior entra en contacto con sus ojos o sus manos, lave inmediatamente las áreas afectadas con agua durante 15 minutos como mínimo. Obtenga atención medica si se presenta algún síntoma del fluido despues de lavarse.

Safety notice 6

DANGER

To avoid shock, do not remove the plastic cover that protects the lower part of the inverter card.

Afin d'éviter tout risque de choc électrique, ne retirez pas le cache en plastique protégeant la partie inférieure de la carte d'alimentation.

Aus Sicherheitsgründen die Kunststoffabdeckung, die den unteren Teil der Spannungswandlerplatine umgibt, nicht entfernen.

כדי למנוע התחשמלות, אין להסיר את מכסה הפלסטיק המגן על חלקו התחתון של הכרטיס ההפוך.

Per evitare scosse elettriche, non rimuovere la copertura in plastica che avvolge la parte inferiore della scheda invertitore.

Para evitar descargas, no quite la cubierta de plástico que rodea la parte baja de la tarjeta invertida.

Safety notice 7

Though the main batteries have low voltage, a shorted or grounded battery can produce enough current to burn personnel or combustible materials.

Bien que le voltage des batteries principales soit peu élevé, le court-circuit ou la mise à la masse d’une batterie peut produire suffisamment de courant pour brûler des matériaux combustibles ou causer des brûlures corporelles graves.

Obwohl Hauptbatterien eine niedrige Spannung haben, können sie doch bei Kurzschluß oder Erdung genug Strom abgeben, um brennbare Materialien zu entzünden oder Verletzungen bei Personen hervorzurufen.

אף שהסוללות הראשיות הן בעלות מתח נמוך, סוללה מקוצרת או מוארקת עלולה להפיק זרם מספיק לגרימת כוויות או להצתת חומרים דליקים.

Sebbene le batterie di alimentazione siano a basso voltaggio, una batteria in corto circuito o a massa può fornire corrente sufficiente da bruciare materiali combustibili o provocare ustioni ai tecnici di manutenzione.

Aunque las baterías principales tienen un voltaje bajo, una batería cortocircuitada o con contacto a tierra puede producir la corriente suficiente como para quemar material combustible o provocar quemaduras en el personal.

Safety notice 8

Before removing any FRU, power off the computer, unplug all power cords from electrical outlets, remove the battery pack, and then disconnect any interconnecting cables.

Avant de retirer une unité remplaçable en clientèle, mettez le système hors tension, débranchez tous les cordons d'alimentation des socles de prise de courant, retirez la batterie et déconnectez tous les cordons d'interface.

Die Stromzufuhr muß abgeschaltet, alle Stromkabel aus der Steckdose gezogen, der Akku entfernt und alle Verbindungskabel abgenommen sein, bevor eine FRU entfernt wird.

לפני סילוק FRU כלשהו, יש לכבות את המחשב, לנתק את כל כבלי החשמל משקעי החשמל, להוציא את מארז הסוללה, ואז לנתק כבלי חיבור אחרים אם יש כאלה.

Prima di rimuovere qualsiasi FRU, spegnere il sistema, scollegare dalle prese elettriche tutti i cavi di alimentazione, rimuovere la batteria e poi scollegare i cavi di interconnessione.

Antes de quitar una FRU, apague el sistema, desenchufe todos los cables de las tomas de corriente eléctrica, quite la batería y, a continuación, desconecte cualquier cable de conexión entre dispositivos.

Safety information

The following section presents safety information with which you need to be familiar before you service a ThinkPad computer.

General safety

Follow these rules to ensure general safety:

- Observe good housekeeping in the area of the machines during and after maintenance.
- When lifting any heavy object:
  1. Make sure that you can stand safely without slipping.
  2. Distribute the weight of the object equally between your feet.
  3. Use a slow lifting force. Never move suddenly or twist when you attempt to lift.
  4. Lift by standing or by pushing up with your leg muscles; this action removes the strain from the muscles in your back. *Do not attempt to lift any object that weighs more than 16 kg (35 lb) or that you think is too heavy for you.*
- Do not perform any action that causes hazards to the customer, or that makes the equipment unsafe.
- Before you start the machine, make sure that other service representatives and the customer's personnel are not in a hazardous position.
- Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the machine.
- Keep your toolcase away from walk areas so that other people will not trip over it.
- Do not wear loose clothing that can be trapped in the moving parts of a machine. Make sure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
- Insert the ends of your necktie or scarf inside clothing or fasten it with a nonconductive clip, about 8 centimeters (3 inches) from the end.
- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing.

  Attention: Metal objects are good electrical conductors.
- Wear safety glasses when you are hammering, drilling, soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that might be hazardous to your eyes.

- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reinstall all covers correctly before returning the machine to the customer.
- Fan louvers on the machine help to prevent overheating of internal components. Do not obstruct fan louvers or cover them with labels or stickers.

WARNING

Handling the cord on this product or cords associated with accessories sold with this product will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. ***Wash hands after handling.***

Electrical safety

Observe the following rules when working on electrical equipment.

Important

Use only approved tools and test equipment. Some hand tools have handles covered with a soft material that does not insulate you when working with live electrical currents.

Many customers have, near their equipment, rubber floor mats that contain small conductive fibers to decrease electrostatic discharges. Do not use this type of mat to protect yourself from electrical shock.

- Find the room emergency power-off (EPO) switch, disconnecting switch, or electrical outlet. If an electrical accident occurs, you can then operate the switch or unplug the power cord quickly.
- Do not work alone under hazardous conditions or near equipment that has hazardous voltages.
- Disconnect all power before:
  - Performing a mechanical inspection
  - Working near power supplies
  - Removing or installing main units
- Before you start to work on the machine, unplug the power cord. If you cannot unplug it, ask the customer to power-off the wall box that supplies power to the machine, and to lock the wall box in the off position.
- If you need to work on a machine that has *exposed* electrical circuits, observe the following precautions:

- Ensure that another person, familiar with the power-off controls, is near you.

    Attention: Another person must be there to switch off the power, if necessary.
  - Use only one hand when working with powered-on electrical equipment; keep the other hand in your pocket or behind your back.

    Attention: An electrical shock can occur only when there is a complete circuit. By observing the above rule, you may prevent a current from passing through your body.
  - When using testers, set the controls correctly and use the approved probe leads and accessories for that tester.
  - Stand on suitable rubber mats (obtained locally, if necessary) to insulate you from grounds such as metal floor strips and machine frames.

  Observe the special safety precautions when you work with very high voltages; Instructions for these precautions are in the safety sections of maintenance information. Use extreme care when measuring high voltages.
- Regularly inspect and maintain your electrical hand tools for safe operational condition.
- Do not use worn or broken tools and testers.
- *Never assume* that power has been disconnected from a circuit. First, *check* that it has been powered off.
- Always look carefully for possible hazards in your work area. Examples of these hazards are moist floors, nongrounded power extension cables, power surges, and missing safety grounds.
- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. The surface is conductive; such touching can cause personal injury and machine damage.
- Do not service the following parts *with the power on* when they are removed from their normal operating places in a machine:
  - Power supply units
  - Pumps
  - Blowers and fans
  - Motor generators

  and similar units. (This practice ensures correct grounding of the units.)
- If an electrical accident occurs:
  - Use caution; do not become a victim yourself.
  - Switch off power.
  - Send another person to get medical aid.

Safety inspection guide

The purpose of this inspection guide is to assist you in identifying potentially unsafe conditions. As each machine was designed and built, required safety items were installed to protect users and service personnel from injury. This guide addresses only those items. You should use good judgment to identify potential safety hazards due to attachment of non-ThinkPad features or options not covered by this inspection guide.

If any unsafe conditions are present, you must determine how serious the apparent hazard could be and whether you can continue without first correcting the problem.

Consider these conditions and the safety hazards they present:

- Electrical hazards, especially primary power (primary voltage on the frame can cause serious or fatal electrical shock)
- Explosive hazards, such as a damaged CRT face or a bulging capacitor
- Mechanical hazards, such as loose or missing hardware

To determine whether there are any potentially unsafe conditions, use the following checklist at the beginning of every service task. Begin the checks with the power off, and the power cord disconnected.

Checklist:

1. Check exterior covers for damage (loose, broken, or sharp edges).
2. Power off the computer. Disconnect the power cord.
3. Check the power cord for:
   a. A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and the frame ground.
   b. The power cord should be the type specified in the parts list.
   c. Insulation must not be frayed or worn.
4. Remove the cover.
5. Check for any obvious non-ThinkPad alterations. Use good judgment as to the safety of any non-ThinkPad alterations.
6. Check inside the unit for any obvious unsafe conditions, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.
7. Check for worn, frayed, or pinched cables.

8. Check that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

Handling devices that are sensitive to electrostatic discharge

Any computer part containing transistors or integrated circuits (ICs) should be considered sensitive to electrostatic discharge (ESD.) ESD damage can occur when there is a difference in charge between objects. Protect against ESD damage by equalizing the charge so that the machine, the part, the work mat, and the person handling the part are all at the same charge.

Notes

1. Use product-specific ESD procedures when they exceed the requirements noted here.
2. Make sure that the ESD protective devices you use have been certified (ISO 9000) as fully effective.

When handling ESD-sensitive parts:

- Keep the parts in protective packages until they are inserted into the product.
- Avoid contact with other people.
- Wear a grounded wrist strap against your skin to eliminate static on your body.
- Prevent the part from touching your clothing. Most clothing is insulative and retains a charge even when you are wearing a wrist strap.
- Use the black side of a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
- Select a grounding system, such as those listed below, to provide protection that meets the specific service requirement.

  Note

  The use of a grounding system to guard against ESD damage is desirable but not necessary.

  – Attach the ESD ground clip to any frame ground, ground braid, or green-wire ground.
  – When working on a double-insulated or battery-operated system, use an ESD common ground or reference point. You can use coax or connector-outside shells on these systems.

– Use the round ground prong of the ac plug on ac-operated computers.

Grounding requirements

Electrical grounding of the computer is required for operator safety and correct system function. Proper grounding of the electrical outlet can be verified by a certified electrician.

Laser compliance statement

Some models of ThinkPad computer are equipped from the factory with an optical storage device such as a CD-ROM drive or a DVD-ROM drive. Such devices are also sold separately as options. If one of these drives is installed, it is certified in the U.S. to conform to the requirements of the Department of Health and Human Services 21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class 1 laser products. Elsewhere, the drive is certified to conform to the requirements of the International Electrotechnical Commission (IEC) 825 and CENELEC EN 60 825 for Class 1 laser products.

If a CD-ROM drive, a DVD-ROM drive, or another laser device is installed, note the following:

⚠ **CAUTION:**

Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

O uso de controles, ajustes ou desempenho de procedimentos diferentes daqueles aqui especificados pode resultar em perigosa exposição à radiação.

凡未在这里指明的任何控制用法、调整、行为，都会导致严重后果。

Pour éviter tout risque d'exposition au rayon laser, respectez les consignes de réglage et d'utilisation des commandes, ainsi que les procédures décrites.

Werden Steuer- und Einstellelemente anders als hier festgesetzt verwendet, kann gefährliche Laserstrahlung auftreten.

Az itt előírt eljárásoktól, beállításoktól és vezérlésektől eltérni a lézersugárzás veszélye miatt kockázatos !

L'utilizzo di controlli, regolazioni o l'esecuzione di procedure diverse da quelle specificate possono provocare l'esposizione a.

Использование элементов настройки и выполнение процедур иных, чем указано здесь, может привести к опасному радиационному облучению.

Použitie kontrôl, úprav alebo iných vykonaní od iných výrobcov, ako je v tomto špecifikované, mohlo by mať za následok nebezpečenstvo vystavenia sa vyžiarovaniu.

El uso de controles o ajustes o la ejecución de procedimientos distintos de los aquí especificados puede provocar la exposición a radiaciones peligrosas.

Opening the CD-ROM drive, the DVD-ROM drive, or any other optical storage device could result in exposure to hazardous laser radiation. There are no serviceable parts inside those drives. **Do not open.**

A CD-ROM drive, a DVD-ROM drive, or any other storage device installed may contain an embedded Class 3A or Class 3B laser diode. Note the following:

Emits visible and invisible laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

Radiação por raio laser ao abrir. Não olhe fixo no feixe de luz, não olhe diretamente por meio de instrumentos óticos e evite exposição direta com o feixe de luz.

开启时会有激光发射时，请勿盯视激光光束，请勿直接查看视觉仪器，并且避免直接接触在激光光束之中。

Rayonnement laser si carter ouvert. Évitez de fixer le faisceau, de le regarder directement avec des instruments optiques, ou de vous exposer au rayon.

Laserstrahlung bei geöffnetem Gerät. Nicht direkt oder über optische Instrumente in den Laserstrahl sehen und den Strahlungsbereich meiden.

Kinyitáskor lézersugár ! Ne nézzen bele se szabad szemmel, se optikai eszközökkel. Kerülje a sugárnyalábbal való érintkezést !.

Aprendo l'unità vengono emesse radiazioni laser. Non fissare il fascio, non guardarlo direttamente con strumenti ottici e evitare l'esposizione diretta al fascio.

Открывая, берегитесь лазерного излучения. Не смотрите на луч, не разглядывайте его с помощью оптических инструментов, а также избегайте прямого воздействия лазерного луча.

Keď je laserová jednotka otvorená. Vyhnite sa priamemu pohľadu a nehľadte priamo s optickými nástrojmi do ľúča a vyhnite sa priamemu vystaveniu ľúčov.

Radiación láser al abrir. No mire fijamente ni examine con instrumental óptico el haz de luz. Evite la exposición directa al haz.

General descriptions

The desciptions in this chapter apply to any ThinkPad model that has the PC-Doctor® for DOS diagnostics program. Some descriptions might not apply to your particular computer.

Read this first

Before you go to the checkout guide, be sure to read this section.

Important notes

- **Only certified trained personnel should service the computer.**
- **Before replacing any FRU, read the entire page on removing and replacing FRUs.**
- **When you replace FRUs, use new nylon-coated screws.**
- **Be extremely careful during such write operations as copying, saving, or formatting.** Drives in the computer that you are servicing sequence might have been altered. If you select an incorrect drive, data or programs might be overwritten.
- **Replace an FRU only with another FRU of the correct model.** When you replace a FRU, make sure that the model of the machine and the FRU part number are correct by referring to the FRU parts list.
- **A FRU should not be replaced because of a single, unreproducible failure.** Single failures can occur for a variety of reasons that have nothing to do with a hardware defect, such as cosmic radiation, electrostatic discharge, or software errors. Consider replacing a FRU only when a problem recurs. If you suspect that a FRU is defective, clear the error log and run the test again. If the error does not recur, do not replace the FRU.
- **Be careful not to replace a nondefective FRU.**

What to do first

When you do return a FRU, you must include the following information in the parts exchange form or parts return form that you attach to it:

__ 1. Name and phone number of servicer

__ 2. Date of service
__ 3. Date on which the machine failed
__ 4. Date of purchase
__ 5. Failure symptoms, error codes appearing on the display, and beep symptoms
__ 6. Procedure index and page number in which the failing FRU was detected
__ 7. Failing FRU name and part number
__ 8. Machine type, model number, and serial number
__ 9. Customer's name and address

Note for warranty:
During the warranty period, the customer may be responsible for repair costs if the computer damage was caused by misuse, accident, modification, unsuitable physical or operating environment, or improper maintenance by the customer. Following is a list of some common items that are not covered under warranty and some symptoms that might indicate that the system was subjected to stress beyond normal use.

Before checking problems with the computer, determine whether the damage is covered under the warranty by referring to the following list:

The following are not covered under warranty:
- LCD panel cracked from the application of excessive force or from being dropped
- Scratched (cosmetic) parts
- Distortion, deformation, or discoloration of the cosmetic parts
- Plastic parts, latches, pins, or connectors that have been cracked or broken by excessive force
- Damage caused by liquid spilled into the system
- Damage caused by the improper insertion of a PC Card or the installation of an incompatible card
- Diskette drive damage caused by pressure on the diskette drive cover, foreign material in the drive, or the insertion of a diskette with multiple labels
- Damaged or bent diskette eject button
- Fuses blown by attachment of a nonsupported device
- Forgotten computer password (making the computer unusable)
- Sticky keys caused by spilling a liquid onto the keyboard

The following symptoms might indicate damage caused by nonwarranted activities:
- Missing parts might be a symptom of unauthorized service or modification.
- If the spindle of a hard disk drive becomes noisy, it may have been subjected to excessive force, or dropped.

Related service information

This section provides information about the following:
- "Service Web site"
- "Restoring the pre-installed system"
- "Passwords" on page 32
- "Power management" on page 35

Service Web site

When the latest maintenance diskette and the system program service diskette become available, they will be posted on `http://www.lenovo.com/think/spm`

Restoring the pre-installed system

When the hard disk drive is replaced because of a failure, no Product Recovery program is on the new hard disk. In this case, you must use the recovery CD for the computer. Order the recovery CD and the hard disk drive at the same time so that you can recover the new hard disk drive with the pre-installed software when they arrive. For information on which CD to order, see "Recovery CDs" on page 243

Recovery to Factory Contents by using Product Recovery CDs

To create the service partition and install the factory contents from the recovery CD, do the following:

Note

The recovery process might take up to 2 hours.

1. Insert the recovery CD into the CD or DVD drive, then restart the computer.
2. The following message is displayed: "**Your computer originally included a Product Recovery program ... Reinstall the Product Recovery program? (Y/N) [ ]**".
3. Press the Y key. The service partition is created and loaded with the Product Recovery program files.
4. At next window, press Enter to continue.
   - The service partition is created. The system automatically reboots during this process.
   - The recovery process copies some files to the service partition, and PKUNZIPs others.
   - Follow the prompts. You may be prompted to change CDs.
   - When the process is complete, the system reboots.

5. If you get a message asking which operating system to install, select the proper operating system and press Enter.
6. A message is displayed: "**Full Recovery:**". Press Enter to select.
7. On each of the next three windows, press the Y key.
8. Follow the prompts to complete the recovery.

Passwords

As many as three passwords may be needed for any ThinkPad computer: the power-on password (POP), the hard-disk password (HDP), and the supervisor password (SVP).

If any of these passwords has been set, a prompt for it appears on the screen whenever the computer is turned on. The computer does not start until the password is entered.

Exception: If only an SVP is installed, the password prompt does not appear when the operating system is booted.

Power-on password:
A power-on password (POP) protects the system from being powered on by an unauthorized person. The password must be entered before an operating system can be booted.

Hard-disk password:
There are two hard-disk passwords (HDPs):

- User HDP—for the user
- Master HDP—for the system administrator, who can use it to get access to the hard disk even if the user has changed the user HDP

Note: There are two modes for the HDP: **User only** and **Master + User**. The **Master + User** mode requires two HDPs; the system administrator enters both in the same operation. The system administrator then provides the user HDP to the system user.

Attention: If the user HDP has been forgotten, check whether a master HDP has been set. If it has, it can be used for access to the hard disk drive. If no master HDP is available, neither Lenovo nor Lenovo authorized servicers provide any services to reset either the user or the master HDP, or to recover data from the hard disk drive. The hard disk drive can be replaced for a scheduled fee.

Supervisor password:
A supervisor password (SVP) protects the system

information stored in the BIOS Setup Utility. The user must enter the SVP in order to get access to the BIOS Setup Utility and change the system configuration.

Attention: If the SVP has been forgotten and cannot be made available to the servicer, there is no service procedure to reset the password. The system board must be replaced for a scheduled fee.

How to remove the power-on password

To remove a POP that you have forgotten, do the following:

(A) If no SVP has been set:

1. Turn off the computer.
2. Remove the battery pack.

   For how to remove the battery pack, see “1010 Battery pack” on page 76.
3. Remove the backup battery.

   For how to remove the backup battery, see “1150 Backup battery” on page 105.
4. Turn on the computer and wait until the POST ends.

   After the POST ends, the password prompt does not appear. The POP has been removed.
5. Reinstall the backup battery and the battery pack.

(B) If an SVP has been set and is known by the servicer:

1. Turn on the computer; then, while the “To interrupt normal startup, press the blue Access IBM button” message is displayed at the lower-left of the screen, press the Access IBM button. The Rescue and Recovery screen opens.

   For models supporting the Passphrase function, press F1 while the POP icon is appearing on the screen; then enter the POP. For the other models, enter the POP.

   Note: To check whether the ThinkPad computer supports the Passphrase function, enter the BIOS Setup Utility and go to **Security** --> **Password**. If the **Using Passphrase** item is displayed in the menu, this function is available on the ThinkPad computer.
2. Click **Access BIOS**. The system Restart Required window is displayed.
3. Click **Yes**. The computer restarts, and the BIOS Setup Utility screen opens.
4. Select **Security**, using the cursor directional keys to move down the menu.

5. Select **Password**.
6. Select **Power-On Password**.
7. Type the current SVP in the **Enter Current Password** field. then leave the **Enter New Password** field blank, and press Enter twice.
8. In the Changes have been saved window, press Enter.
9. Press F10; then, in the Setup confirmation window, select **Yes** .

How to remove the hard-disk password

Attention: If **User only** mode is selected and the user HDP has been forgotten and cannot be made available to the servicer, neither Lenovo nor Lenovo authorized servicers provide any services to reset the user HDPs or to recover data from the hard disk drive. The hard disk drive can be replaced for a scheduled fee.

To remove a user HDP that has been forgotten, when the SVP and the master HDP are known, do the following:

1. Turn on the computer; then, while the “To interrupt normal startup, press the blue Access IBM button” message is displayed at the lower-left of the screen, press the Access IBM button. The Rescue and Recovery screen opens.

   For models supporting the Passphrase function, press F1 while the HDP icon is appearing on the screen; then enter the master HDP. For the other models, enter the master HDP.

   Note: To check whether the ThinkPad computer supports the Passphrase function, enter the BIOS Setup Utility and go to **Security** --> **Password**. If the **Using Passphrase** item is displayed in the menu, this function is available on the ThinkPad computer.
2. Click **Access BIOS**. The system Restart Required window is displayed.
3. Click **Yes**. The computer restarts, and the BIOS Setup Utility screen opens.
4. Select **Security**, using the cursor directional keys to move down the menu.
5. Select **Password**.
6. Select **Hard-disk** *x* **password**, where *x* is the letter of the hard disk drive. A pop-up window opens.
7. Select **Master HDP**.
8. Type the current master HDP in the **Enter Current Password** field. then leave the **Enter New Password** field blank, and press Enter twice.
9. Press F10.

10. Select **Yes** in the Setup Configuration window.

    Both user HDP and master HDP will have been removed.

Power management

To reduce power consumption, the computer has three power management modes: screen blank, standby, and hibernation.

Screen blank mode

In R50e and R52 series, screen blank mode has three variants, as follows:

1. If you press Fn+F3, or if the time set on the “LCD off timer” in BIOS Setup Utility expires,
   - The LCD backlight turns off.
   - The hard disk drive motor stops.
   - The speaker is muted.
2. If you are using the ACPI operating system and you press Fn+F3,
   - The LCD backlight turns off.
   - The hard disk drive motor stops.
3. If the time set on the “Turn off monitor” timer in the operating system expires,
   - The LCD backlight turns off.

To end screen blank mode and resume normal operation, press any key.

In R51e, press the Access IBM button and user the ThinkVantage Productivity Center to turn off power to the computer display.

Standby mode

When the computer enters standby mode, the following events occur in addition to what occurs in screen blank mode:

- The LCD is powered off.
- The hard disk drive is powered off.
- The CPU stops.

To enter standby mode, press Fn+F4.

In R51e, you can also use the ThinkVantage Productivity Center to put the computer in standby mode.

Note: If you are using the ACPI operating system, you can change the action of Fn+F4.

In certain circumstances, the computer goes into standby mode automatically:

- If a “suspend time” has been set on the timer, and the user does not do any operation with the keyboard, the TrackPoint, the hard disk, the parallel connector, or the diskette drive within that time.
- If the battery indicator blinks orange, indicating that the battery power is low. (Alternatively, if **Hibernate when battery becomes low** has been selected in the “Power Management Properties” window, the computer goes into hibernation mode.)

To cause the computer to return from standby mode and resume operation, do one of the following:

- Press the Fn key.
- Open the LCD cover.
- Turn on the power switch.

Also, in either of the following events, the computer automatically returns from standby mode and resumes operation:

- The ring indicator (RI) is signaled by a serial device or a PC Card device.
- The time set on the resume timer elapses.

Note: The computer does not accept any input immediately after it enters standby mode. Wait a few seconds before taking any action to reenter operation mode.

Hibernation mode

In hibernation mode, the following occurs:

- The system status, RAM, VRAM, and setup data are stored on the hard disk.
- The system is powered off.

Note: If the computer enters the hibernation mode while it is docked to the docking station, do not undock it before resuming normal operation. If you do undock it and then try to resume normal operation, you will get an error message, and you will have to restart the system.

To cause the computer to enter hibernation mode, do any of the following:

- Press the Fn+F12 keys.
- If you are using the ACPI operating system and have defined one of the following actions as the event that causes the system to go into hibernation mode, perform that action.
  – Closing the lid.
  – Pressing the power button.
  – Pressing Fn+F4 keys.

Also, the computer goes into hibernation mode automatically in either of the following conditions:

- If a “hibernation time” has been set on the timer, and if the user does not do any operation with the keyboard, the TrackPoint, the hard disk drive, the parallel connector, or the diskette drive within that time.
- If the timer conditions are satisfied in suspend mode.

When the power is turned on, the computer returns from hibernation mode and resumes operation. The hibernation file in the boot record on the hard disk drive is read, and system status is restored from the hard disk drive.

In R51e, you can also use the ThinkVantage Productivity Center to put the computer in hibernation mode.

Checkout guide

Use the following procedures as a guide in identifying and correcting problems with the ThinkPad computer.

Note: The diagnostic tests are intended to test only ThinkPad products. The use of non-ThinkPad products, prototype cards, or modified options can lead to false indications of errors and invalid system responses.

1. Identify the failing symptoms in as much detail as possible.
2. Verify the symptoms. Try to re-create the failure by running the diagnostic test or by repeating the operation.

Testing the computer

The ThinkPad computer has a test program called PC-Doctor for DOS (hereafter called *PC-Doctor*.) You can detect errors by running the diagnostics test included in PC-Doctor. This section is an overview of the procedure. For details that depend on model-unique functions, refer to “Product overview” on page 47.

For some possible configurations of the computer, PC-Doctor might not run correctly. To avoid this problem, you need to initialize the computer setup by use of the BIOS Setup Utility before you run PC-Doctor. On the BIOS Setup Utility screen, press F9, Enter, F10, and then Enter.

Note: When you initialize the computer configuration, some devices are disabled, such as the serial port. If you test one of these devices, you will need to enable it by using Configuration utility for DOS. The utility is available on the following Web site: `http://www.lenovo.com/think/ support`

PC-Doctor cannot be used to test a device that is in the docking station, even if the computer supports the docking station. To test a USB device, connect it to the USB connector of the computer.

Creating the PC-Doctor diagnostics diskette

To create the PC-Doctor disk from the Rescue and Recovery workspace, do as follows:

1. Enter the Rescue and Recovery workspace by pressing the Access IBM button during POST.
2. When the Rescue and Recovery workspace finishes loading, click the “Create Diagnostic Diskette” .

3. Authenticating the digital signature takes about 15 seconds; then the ThinkPad computer will reboot into PC-DOS.
4. A batch file automatically starts up to prompt you through the process of creating diskettes. You are notified of how many diskettes you will need.
   a. You are prompted to insert each diskette in sequence.
   b. Typically, all you need to do is to press the Enter key for the floppy drive; the system then formats and creates the diskette.
   c. Each diskette is erased and formatted with the PC-Doctor for DOS boot image.
5. As soon as all the diskettes have been created, the ThinkPad computer reboots. You then receive a message asking you to remove the last diskette from the drive or, if you want to run the diagnostics, to insert the first diskette.

To run the test, do as follows:

Note: In the following procedure, you can select an item not only with the arrow keys, but also with the TrackPoint pointer. Instead of pressing Enter, click the left button.

1. Insert the PC-Doctor disk into the diskette drive; then power on the computer.

   If the computer cannot be powered on, go to “Power system checkout” on page 41, and check the power sources.

   If an error code appears, go to “Symptom-to-FRU index” on page 62.

   On the first screen, select the model and press Enter. Follow the instructions on the screen.
2. The main panel of PC-Doctor appears.
3. Select **Diagnostics** with the arrow keys, and press Enter.

   A pull-down menu appears. (Its exact form depends on the model.)

   Note: PC-Doctor menu does not mean the formal support device list. Some unsupported device names may appear in the PC-Doctor menu.

```
Diagnostics   Interactive Tests   Hardware Info   Utility   Quit   F1=Help
 Run Normal Test
 Run Quick Test
 CPU/Coprocessor
 Systemboard
 Video Adapter
 Serial Ports
 Parallel Ports
 Fixed Disks
 Diskette Drives
 Other Devices
 Communication
 Wireless LAN
 Memory Test - Full
 Memory Test - Quick

 PC-DOCTOR 2.0  Copyright 2002 PC-Doctor, Inc.  All Rights Reserved.

Use the cursor keys and ESC to move in menus. Press ENTER to select.
```

The options on the test menu are as follows:

Diagnostics	**Interactive Tests**
• Run Normal Test • Run Quick Test • CPU/Coprocessor • Systemboard • Video Adapter • Serial Ports • Parallel Ports • Fixed Disks • Diskette Drives • Other Devices • ThinkPad Devices • Communication • Wireless LAN • Memory Test – Full • Memory Test – Quick	• Keyboard • Video • Internal Speaker • Mouse • Diskette • System Load • CD-ROM/DVD Test • Intel Wireless Radio
Notes: • In the **Keyboard** test in **Interactive Tests**, the Fn key should be held down for at least 2 seconds; otherwise, it cannot be sensed. • **Video Adapter** test supports only the LCD display on the ThinkPad computer. If you have an external monitor attached to your computer, detach it before running PC-Doctor for DOS. • When Legacy Floppy Drives is enabled in the BIOS Setup Utility, the **Diskette Drives** test is activated even if no legacy diskette drive is attached to the ThinkPad computer.	

4. Run the applicable function test.
5. Follow the instructions on the screen. If there is a problem, PC-Doctor shows messages describing it.
6. To exit the test, select **Quit — Exit Diag**.

   To cancel the test, press Esc.

Note: After running PC-Doctor, check the time and date on the system and reset them if they are incorrect.

Detecting system information with PC-Doctor

PC-Doctor can detect the following system information:

Hardware Info

- System Configuration
- Memory Contents
- Physical Disk Drives
- Logical Disk Drives
- VGA Information
- IDE Drive Info
- PCI Information
- PNPISA Info
- SMBIOS Info
- VESA LCD Info
- Hardware Events Log

Utility

- Run External Tests
- Surface Scan Hard Disk
- Benchmark System
- DOS Shell
- Tech Support Form
- Battery Rundown
- View Test Log
- Print Log
- Save Log
- Full Erase Hard Drive
- Quick Erase Hard Drive

Power system checkout

To verify a symptom, do the following:

1. Turn off the computer.
2. Remove the battery pack.
3. Connect the ac adapter.
4. Check that power is supplied when you turn on the computer.
5. Turn off the computer.
6. Disconnect the ac adapter and install the charged battery pack.
7. Check that the battery pack supplies power when you turn on the computer.

If you suspect a power problem, see the appropriate one of the following power supply checkouts:

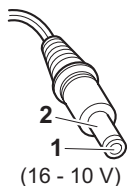
- “Checking the ac adapter” on page 42
- “Checking operational charging” on page 42
- “Checking the battery pack” on page 42
- “Checking the backup battery” on page 43

Checking the ac adapter

You are here because the computer fails only when the ac adapter is used.

- If the power problem occurs only when the port replicator is used, replace the port replicator.
- If the power-on indicator does not turn on, check the power cord of the ac adapter for correct continuity and installation.
- If the computer does not charge during operation, go to ″Checking operational charging.″

To check the ac adapter, do the following:

1. Unplug the ac adapter cable from the computer.
2. Measure the output voltage at the plug of the ac adapter cable. See the following figure:

Pin	Voltage (V dc)
1	+15.5 to +17.0
2	Ground

3. If the voltage is not correct, replace the ac adapter.
4. If the voltage is acceptable, do the following:
   - Replace the system board.
   - If the problem persists, go to “Product overview” on page 47.

Note: Noise from the ac adapter does not always indicate a defect.

Checking operational charging

To check whether the battery charges properly during operation, use a discharged battery pack or a battery pack that has less than 50% of the total power remaining when installed in the computer.

Perform operational charging. If the battery status indicator or icon does not turn on, remove the battery pack and let it return to room temperature. Reinstall the battery pack. If the charge indicator or icon still does not turn on, replace the battery pack.

If the charge indicator still does not turn on, replace the system board. Then reinstall the battery pack. If it is still not charged, go to the next section.

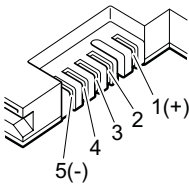
Checking the battery pack

Battery charging does not start until the Power Meter shows that less than 95% of the total power remains;

under this condition the battery pack can charge to 100% of its capacity. This protects the battery pack from being overcharged or from having a shortened life.

To check your battery, move your cursor to the Power Meter icon in the icon tray of the Windows taskbar and wait for a moment (but do not click), and the percentage of battery power remaining is displayed. To get detailed information about the battery, double-click the Power Meter icon.

Note: If the battery pack becomes hot, it may not be able to charge. Remove it from the computer and leave it at room temperature for a while. After it cools down, reinstall and recharge it.

To check the battery pack, do the following:
1. Turn off the computer.
2. Remove the battery pack and measure the voltage between battery terminals 1 (+) and 5 (–). See the following figure:

Terminal	Voltage (V dc)
1	+ 0 to + 12.6
5	Ground (–)

3. If the voltage is less than +11.0 V dc, the battery pack has been discharged.

   Note: Recharging will take at least 3 hours, even if the indicator does not turn on.

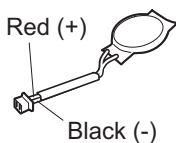
   If the voltage is still less than +11.0 V dc after recharging, replace the battery.
4. If the voltage is more than +11.0 V dc, measure the resistance between battery terminals 4 and 5. The resistance must be 4 to 30 K Ω.

   If the resistance is not correct, replace the battery pack. If the resistance is correct, replace the system board.

Checking the backup battery

Do the following:

1. Turn off the computer, and unplug the ac adapter from it.
2. Turn the computer upside down.
3. Remove the battery pack (see “1010 Battery pack” on page 76).

4. Remove the backup battery (see “Checking the battery pack” on page 42).
5. Measure the voltage of the backup battery. See the following figure.

Wire	**Voltage (V dc)**
Red	+2.5 to +3.2
Black	Ground

- If the voltage is correct, replace the system board.
- If the voltage is not correct, replace the backup battery.
- If the backup battery discharges quickly after replacement, replace the system board.

ThinkPad R50e, R51e and R52 Series

Product overview

This section presents the following product-unique information:

- “Specifications”
- “Status indicators” on page 54
- “FRU tests” on page 57
- “Fn key combinations” on page 59

Specifications

The following table lists the specifications of the ThinkPad R50e, R51e and R52 series:

Feature	Description
Processor	**R50e series:** • Intel® Celeron® M processor 350 (1.3 GHz), L2 1-MB cache • Intel Celeron M processor 360 (1.4 GHz), L2 1-MB cache • Intel Celeron M processor 370 (1.5 GHz), L2 1-MB cache • Intel Pentium® M processor 725 (1.6 GHz), L2 1-MB cache • Intel Pentium M processor 735 (1.7 GHz), L2 1-MB cache • Intel Pentium M processor 745 (1.8 GHz), L2 1-MB cache • Intel Pentium M processor 755 (2.0 GHz), L2 1-MB cache **R51e series:** • Intel Celeron M processor 360 (1.4 GHz), L2 1-MB cache • Intel Celeron M processor 370 (1.5 GHz), L2 1-MB cache • Intel Celeron M processor 380 (1.6 GHz), L2 1-MB cache • Intel Pentium M processor 740 (1.73 GHz), L2 2-MB cache • Intel Pentium M processor 750 (1.86 GHz), L2 2-MB cache • Intel Pentium M processor 760 (2.0 GHz), L2 2-MB cache • Intel Pentium M processor 770 (2.1 GHz), L2 2-MB cache (continued)

(continued)

Feature	Description
Processor	**R52 series:** • Intel Celeron M processor 350 (1.3 GHz), L2 1-MB cache • Intel Celeron M processor 360 (1.4 GHz), L2 1-MB cache • Intel Celeron M processor 370 (1.5 GHz), L2 1-MB cache • Intel Celeron M processor 380 (1.6 GHz), L2 1-MB cache • Intel Pentium M processor 730 (1.6 GHz), L2 2-MB cache • Intel Pentium M processor 740 (1.73 GHz), L2 2-MB cache • Intel Pentium M processor 750 (1.86 GHz), L2 2-MB cache • Intel Pentium M processor 760 (2.0 GHz), L2 2-MB cache • Intel Pentium M processor 770 (2.1 GHz), L2 2-MB cache • Intel Pentium M processor 780 (2.26 GHz), L2 2-MB cache
Standard memory	**R50e series:** • 256 MB DDR SDRAM SO-DIMM (PC2700) card × 1 • 512 MB DDR SDRAM SO-DIMM (PC2700) card × 1 • 1 GB DDR SDRAM SO-DIMM (PC2700) card × 1 **R51e series:** • 256 MB DDR SDRAM SO-DIMM (PC2-4200) card × 1 • 512 MB DDR SDRAM SO-DIMM (PC2-4200) card × 1 **R52 series:** • 256 MB DDR SDRAM SO-DIMM (PC2-4200) card × 1 • 512 MB DDR SDRAM SO-DIMM (PC2-4200) card × 1 • 1 GB DDR SDRAM SO-DIMM (PC2-4200) card × 1

(continued)

Feature	**Description**
Optional memory	• 256 MB DDR SDRAM SO-DIMM (PC2700) card • 512 MB DDR SDRAM SO-DIMM (PC2700) card • 1 GB DDR SDRAM SO-DIMM (PC2700) card • 256 MB DDR SDRAM SO-DIMM (PC2-4200) card • 512 MB DDR SDRAM SO-DIMM (PC2-4200) card • 1 GB DDR SDRAM SO-DIMM (PC2-4200) card (maximum of 2048 MB)
Bus architecture	• 400 MHz PSB (Processor System Bus) • 533 MHz PSB • 333 MHz DDR (Double Data Rate) SDRAM (Synchronous DRAM) (PC2700) • 533 MHz DDR-2 (Double Data Rate 2) SDRAM (Synchronous DRAM) (PC2-4200) • HUB link • PCI bus • LPC bus
Graphic memory chip	**R50e series:** • Intel 855GM **R51e series:** • RC410M **R52 series:** • Intel 910GML • Intel 915GM • 32 MB DDR SDRAM (ATI M22-32) • 32 MB DDR SDRAM (ATI M22-64) • 64 MB DDR SDRAM (ATI M22-64)
CMOS RAM	• 242 bytes

(continued)

Feature	Description
I/O port	**R50e and R51e series:** • External monitor connector • Stereo headphone jack • Monaural microphone jack • Parallel connector • RJ11 connector • RJ45 connector • Universal serial bus (USB) 2.0 connector × 2 (compatible with USB 1.1 and 2.0) **R52 series:** • External monitor connector • Stereo headphone jack • Monaural microphone jack • Infrared port • Parallel connector • Docking connector • RJ11 connector • RJ45 connector • TV-out connector (S-Video) • Universal serial bus (USB) 2.0 connector × 2 (compatible with USB 1.1 and 2.0) • IEEE 1394 connector (some models) • Fingerprint reader (some models)
Internal modem	• 56.6 Kbps
Audio	**R50e and R51e series:** • 1 W built-in monaural speaker×1 • Software control volume **R52 series:** • 1 W built-in stereo speaker × 2 • Software control volume
Infrared transfer (for R52 series)	• IrDA 1.1
Display	**R50e and R51e series:** • 14.1-inch, 16M colors, XGA (1024 × 768 resolution) TFT color LCD • 15.0-inch, 16M colors, XGA (1024 × 768 resolution) TFT color LCD **R52 series:** • 14.1-inch, 16M colors, XGA (1024 × 768 resolution) TFT color LCD • 15.0-inch, 16M colors, XGA (1024 × 768 resolution) TFT color LCD • 15.0-inch, 16M colors, SXGA+ (1400 × 1050 resolution) TFT color LCD

(continued)

Feature	Description
Ultrabay Enhanced device	**R50e series:** • CD-ROM drive, 12.7 mm high • DVD drive, 12.7 mm high • DVD/CD-RW combo drive, 12.7 mm high • DVD-RAM/RW drive, 12.7 mm high (option) **R51e series:** • CD-ROM drive, 12.7 mm high • DVD drive, 12.7 mm high • DVD/CD-RW combo drive, 12.7 mm high • DVD-RAM/RW drive, 12.7 mm high **R52 series:** • CD-ROM drive, 12.7 mm high • DVD drive, 12.7 mm high • DVD/CD-RW combo drive, 12.7 mm high • DVD-RAM/RW drive, 12.7mm high • DVD drive, 9.5 mm high (supported by CTO) • DVD/CD-RW combo drive, 9.5 mm high (supported by CTO) • DVD-RAM/RW drive, 9.5 mm high (supported by CTO)
Touch pad (for R52 series)	• UltraNav
ThinkLight	Yes
Hard disk drive	• 30.0 GB, 4200 rpm, 9.5 mm high, IDE interface • 40.0 GB, 4200 rpm, 9.5 mm high, IDE interface • 40.0 GB, 5400 rpm, 9.5 mm high, IDE interface • 60.0 GB, 4200 rpm, 9.5 mm high, IDE interface • 60.0 GB, 5400 rpm, 9.5 mm high, IDE interface • 80.0 GB, 4200 rpm, 9.5 mm high, IDE interface • 80.0 GB, 5400 rpm, 9.5 mm high, IDE interface • 80.0 GB, 7200 rpm, 9.5 mm high, IDE interface • 100.0 GB, 5400 rpm, 9.5 mm high, IDE interface Supported hard disk drives are depend on the model.

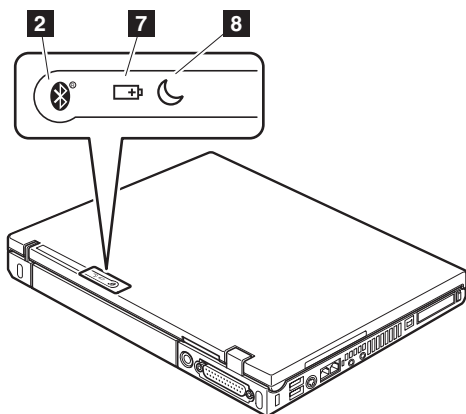
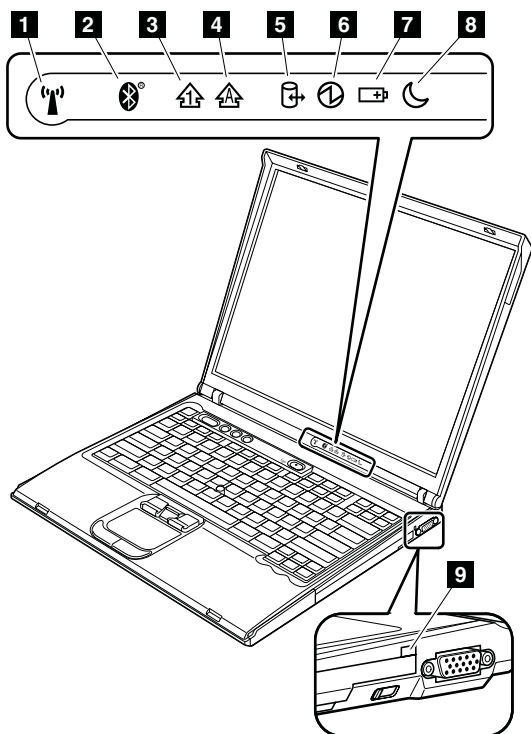
(continued)

Feature	Description
Integrated wireless LAN feature	**R50e series:** • 802.11b • 802.11b/g **R51e series:** • 802.11b/g • 802.11a/b/g **R52 series:** • 802.11b • 802.11b/g • 802.11a/b/g and *Bluetooth* wireless
Mini PCI adapter	**R50e series:** • Intel PRO/Wireless LAN 2100 3B Mini PCI Adapter (802.11b) • Intel PRO Wireless 2200BG Mini-PCI Adapter **R51e series:** • ThinkPad 11b/g Wireless LAN Mini PCI Adapter • ThinkPad 11a/b/g Wireless LAN Mini PCI Adapter II **R52 series:** • Intel PRO/Wireless LAN 2100 3B Mini PCI Adapter (802.11b) • Intel PRO Wireless 2200BG Mini-PCI Adapter • ThinkPad 11b/g Wireless LAN Mini PCI Adapter • ThinkPad 11a/b/g Wireless LAN Mini PCI Adapter II • Intel PRO Wireless 2915ABG Mini-PCI Adapter
PC Card/ExpressCard	• One Type-III • One Type-II
	• One Type-II • One ExpressCard
Ethernet (on the system board)	**R50e and R51e series:** • 10/100Base Ethernet **R52 series:** • Gigabit Ethernet

(continued)

Feature	Description
Communication daughter card (CDC)	**R50e and R51e series:** • ThinkPad Integrated 56K Modem (MDC-2) **R52 series:** • ThinkPad Integrated 56K Modem (MDC-2) • ThinkPad Integrated *Bluetooth* IV with 56K Modem (BMDC-3)
Battery	• Li-ion battery (6 cells) • Li-ion battery (9 cells) • Ultrabay Enhanced Li Polymer battery, 3 cells (option)
AC adapter	• 72-watt type
Preinstalled operating system	• Windows XP Professional • Windows XP Home Edition

Status indicators

The system status indicators show the status of the computer, as follows:

Note: Some models may not have the status indicators shown above.

Note: Some models may not have the status indicators described below.

Indicator	Meaning
1 Wireless status	**Green:** The wireless feature (the IEEE 802.11 standard) is on, and the radio link is ready for use. **Blinking green:** Data is being transmitted.
2 *Bluetooth* wireless status ®	**Green:** *Bluetooth* wireless feature is operational. This indicator is on when *Bluetooth* wireless feature is on and not in suspend mode.
3 Num lock	**Green:** The numeric keypad on the keyboard is enabled. To enable or disable the keypad, press and hold the Shift key, and press the NumLk (ScrLk) key.
5 Caps lock	**Green:** Caps Lock mode is enabled. To enable or disable Caps Lock mode, press the Caps Lock key.
5 Drive in use	**Green:** Data is being read from or written to the hard disk drive, the diskette drive, or the drive in the Ultrabay Enhanced device. When this indicator is on, do not put the computer into standby mode or turn off the computer. **Note:** Do not move the system while the green drive-in-use light is on. Sudden physical shock could cause drive errors.
6 Power-on	**Green:** The computer is on and ready to use. This indicator stays lit whenever the computer is on and is not in standby mode.

(continued)

Indicator	Meaning
7 Battery status	**Green:** The battery is in use and has enough power. The ac adapter has charged the battery completely. **Blinking green:** The battery is being charged, but still has enough power to operate. (At regular intervals, the indicator light turns off briefly.) **Orange:** The battery is being charged, but the battery power is still low. **Blinking orange:** The battery needs to be charged. When the indicator starts blinking orange, the computer beeps three times.
8 Standby status	**Green:** The computer is in standby mode. **Blinking green:** The computer is entering standby mode or hibernation mode, or is resuming normal operation.
9 Ultrabay Enhanced status	**Green:** An Ultrabay Enhanced device is installed and in use. **Blinking green:** An Ultrabay Enhanced device is in the process of being detached. **Turn off:** An Ultrabay Enhanced device is ready to be attached or detached.

FRU tests

The following table shows the test for each FRU.

FRU	Applicable test
System board	1. **Diagnostics** --> **CPU/Coprocessor** 2. **Diagnostics** --> **Systemboard** 3. If the docking station or the port replicator is attached to the ThinkPad computer, undock it. Place the computer on a horizontal surface, and run **Diagnostics** --> **ThinkPad Devices** --> **HDD Active Protection Test**. **Note:** Do not apply any physical shock to the computer while the test is running.
Power	**Diagnostics** --> **ThinkPad Devices** --> **AC Adapter**, **Battery 1 (Battery 2)**
LCD unit	1. **Diagnostics** --> **Video Adapter** 2. **Interactive Tests** --> **Video**
Modem daughter card (MDC-2 or BMDC-3)	1. Make sure the modem is set up correctly. 2. Replace the modem jack and the modem card in turn, and run the following tests in **Diagnostics** --> **Communication**: a. Conexant Smart Modem Interrupt b. Conexant Smart Modem Dialtone
Audio	1. **Interactive Tests** --> **Internal Speaker** 2. **Diagnostics** --> **Other Devices** --> **Analog Devices AC97 CODEC Test**
Speaker	**Interactive Tests** --> **Internal Speaker**
PC Card slots	1. **Diagnostics** --> **Systemboard** --> **PCMCIA** 2. Insert a PC Card Wrap Plug into every PC Card slot, and run **Diagnostics** --> **Systemboard** --> **PCMCIA External Loop**
ExpressCard slot	1. Insert a PCI-Express/USB Wrap card into the ExpressCard slot. 2. Turn on the computer. 3. Run **Diagnostics** --> **ThinkPad Devices** --> **Express Card Slot.**
Keyboard	1. **Diagnostics** --> **Systemboard** --> **Keyboard** 2. **Interactive Tests** --> **Keyboard**
Hard disk drive	**Diagnostics** --> **Fixed Disks**

(continued)

FRU	Applicable test
Diskette drive	1. **Diagnostics** --> **Diskette Drives** 2. **Interactive Tests** --> **Diskette**
DVD drive or DVD/CD-RW combo drive	1. **Diagnostics** --> **Other Devices** --> **CD-ROM/DVD** 2. **Interactive Tests** --> **CD-ROM/DVD Test**
Memory	1. If two DIMMs are installed, remove one of them and run **Diagnostics** --> **Memory Test—Quick**. 2. If the problem does not recur, return the DIMM to its place, remove the other one, and run the test again. 3. If the test does not detect the error, run **Diagnostics** --> **Memory Test—Full**.
Fan	1. Turn on the computer and check the air turbulence at the louver near the PC Card slot. 2. Run **Diagnostics** --> **ThinkPad Devices** --> **Fan**.
TrackPoint or pointing device	If the TrackPoint does not work, check the configuration as specified in the ThinkPad Configuration program. If the TrackPoint is disabled, select **Automatic** (or **Enable**) to enable it. After you use the TrackPoint, the pointer may drift on the screen for a short time. This drift can occur when a slight, steady pressure is applied to the TrackPoint pointer. This symptom is not a hardware problem. If the pointer stops after a short time, no service action is necessary. If enabling the TrackPoint does not correct the problem, continue with the following: • **Interactive Tests** --> **Mouse**
Touch Pad	If the Touch Pad does not work, check the configuration as specified in the ThinkPad Configuration program. If the Touch Pad is disabled, select **Automatic** to enable it. If enabling the Touch Pad does not correct the problem, continue with the following: • **Interactive Tests** --> **Mouse**

Fn key combinations

The following table shows the function of each combination of Fn with a function key.

Key combination	Description
Fn+F1	Reserved.
Fn+F2	Reserved.
Fn+F3	**R50e and R52 series:**Turn off the computer display, leaving the screen blank. To turn the computer display on again, press any key or press the TrackPoint pointing stick.
	R51e series: Select a power scheme that has been created by Power Manager. A panel for selecting a power scheme appears when this combination is pressed. **Notes:** 1. If the user has logged on with a administrator user ID, and Fn+F3 is pressed, the panel for selecting a power scheme appears. If the user have logged on with another user ID, and Fn+F3 is pressed, the panel does not appear. 2. The computer display cannot be turned off by pressing Fn+F3.
Fn+F4	Put the computer in standby mode. To return to normal operation, press the Fn key only, without pressing a function key. **Note:** This combination of keys functions as a sleep button. The setting can be changed so that pressing it puts the computer into hibernation mode or even shuts the computer down.
Fn+F5	Control the power source of the built-in *Bluetooth* wireless device. This combination of the keys functions as a toggle switch of the power state. **Note:** In Windows 2000 or Windows XP, this combination of keys enables or disables the built-in wireless networking features (the IEEE 802.11 standard) and the *Bluetooth wireless* features. To use this function, the following drivers must be installed. • ThinkPad Power Management driver • OnScreen Display utility • Wireless device drivers
Fn+F6	Reserved.

(continued)

Key combination	Description
Fn+F7	Switch a display output location • External monitor (CRT display) • Computer display and external monitor (LCD + CRT display) • Computer display (LCD) **Note:** For any operating system other than Windows 2000 or Windows XP, no additional procedure is needed; just press Fn+F7. **Notes:** 1. This function does not work when different desktop images are displayed on the computer display and the external monitor (the Extend desktop function). 2. This function does not work while a DVD movie or a video clip is playing. 3. For Windows 2000 or Windows XP, a hotkey application might take over the switching function.
Fn+F8	If the image displayed on the computer is smaller than the physical display, switch the computer screen size between expanded mode and normal mode.

(continued)

Key combination	**Description**
Fn+F9	Open the ThinkPad EasyEject Utility screen. Buttons for the following choices are displayed: • **Eject ThinkPad PC from Dock**: This button is displayed only if the ThinkPad computer has been attached to a ThinkPad Dock II. The computer can be detached from the ThinkPad Dock II. • **Eject ThinkPad PC from Mini Dock**: This button is displayed only if the ThinkPad computer has been docked in a ThinkPad Mini Dock and one or more USB devices have been connected to the ThinkPad Mini Dock. You can stop and remove all the USB devices safely by clicking the button. **Note:** If a diskette drive is connected to the external-diskette-drive connector of the ThinkPad Mini Dock, you cannot connect a USB diskette drive. • **Run EasyEject Actions**: This button is used to select, stop, or remove external devices connected to the ThinkPad computer. • **Configure EasyEject Actions**: Opens the ThinkPad EasyEject Utility main window. • **Fn+F9 Settings**: Contigures the settings for the Fn+F9 function. You can use this utility to stop and remove all ejectable devices connected to the ThinkPad computer, the ThinkPad Mini Dock, or the ThinkPad Port Replicator II. You cannot use it to detach the computer from the ThinkPad Mini Dock or the ThinkPad Port Replicator II.
Fn+F10	Reserved.
Fn+F11	Reserved.
Fn+F12	Put the computer into hibernation mode. To return to normal operation, press the power button for less than four seconds. **Note:** To use Fn+F12 for hibernation, you must have the PM device driver installed on the computer.
Fn+PgUp	Turn the ThinkLight on or off. **Note:** This function is supported only on the ThinkPad computers that have the ThinkLight. The on or off status of the ThinkLight is shown on the screen for a few seconds when you press Fn+PgUp.
Fn+Home	The computer display becomes brighter.
Fn+End	The computer display becomes dimmer.
Fn+Spacebar	Enable the FullScreen Magnifier function.

Symptom-to-FRU index

The symptom-to-FRU index in this section lists symptoms and errors and their possible causes. The most likely cause is listed first, in boldface type.

Note: Do the FRU replacement or other actions in the sequence shown in the column headed “FRU or action, in sequence.” If replacing a FRU does not solve the problem, put the original part back in the computer. Do not replace a nondefective FRU.

This index can also help you determine, during regular servicing, what FRUs are likely to need to be replaced next.

A numeric error is displayed for each error detected in POST or system operation. In the displays, **n** can be any number.

If no numeric code is displayed, check the narrative descriptions of symptoms. If the symptom is not described there, go to “Intermittent problems” on page 70.

Note

For a device not supported by diagnostic codes in the ThinkPad notebook computers, see the manual for that device.

Numeric error codes

Symptom or error	FRU or action, in sequence
0175 Bad CRC1, stop POST task—The EEPROM checksum is not correct.	**System board.**
0176 System Security—The system has been tampered with.	1. **Run BIOS Setup Utility, and save the current setting by pressing F10.** 2. System board.
0177 Bad SVP data, stop POST task—The checksum of the supervisor password in the EEPROM is not correct.	**System board.**
0182 Bad CRC2. Enter BIOS Setup and load Setup defaults.—The checksum of the CRS2 setting in the EEPROM is not correct.	1. **Run BIOS Setup Utility. Press F9, and Enter to load the default setting. Then save the current setting by pressing F10.** 2. System board.

Symptom or error	FRU or action, in sequence
0185 Bad startup sequence settings. Enter BIOS Setup and load Setup defaults.	1. **Run BIOS Setup Utility. Press F9, and Enter to load the default setting. Then save the current setting by pressing F10.**
0187 EAIA data access error—The access to EEPROM is failed.	**System board.**
0188 Invalid RFID Serialization Information Area.	**System board.**
0189 Invalid RFID configuration information area—The EEPROM checksum is not correct.	**System board.**
0190 Critical low-battery error	1. **Charge the battery pack.** 2. Battery pack.
0191 System Security—Invalid Remote Change requested.	1. **Run BIOS Setup Utility, and then save current setting by pressing F10.** 2. System board.
0192 System Security— IBM Embedded Security hardware tamper detected.	**System board.**
0199 System Security—IBM Security password retry count exceeded.	1. **Run BIOS Setup Utility, and then save the current setting by pressing F10.** 2. System board.
01C8 Two or more modem devices are found. Remove all but one of them. Press <Esc> to continue.	1. **Remove either a Mini-PCI Card or a modem daughter card. Otherwise, press Esc to ignore the warning message.** 2. System board.
01C9 More than one Ethernet devices are found. Remove one of them. Press <Esc> to continue.	1. **Remove the Ethernet device that you installed; or press Esc to ignore the warning message.** 2. System board.
0200 Hard disk error—The hard disk is not working.	1. **Reseat the hard disk drive.** 2. Load Setup Defaults in BIOS Setup Utility. 3. Hard disk drive. 4. System board.
021x Keyboard error.	**Run interactive tests of the keyboard and the auxiliary input device.**

Symptom or error	FRU or action, in sequence
0220 Monitor type error—Monitor type does not match the one specified in CMOS.	**Load Setup Defaults in BIOS Setup Utility.**
0230 Shadow RAM error—Shadow RAM fails at offset nnnn.	**System board.**
0231 System RAM error—System RAM fails at offset nnnn.	1. **DIMM.** 2. System board.
0232 Extended RAM error—Extended RAM fails at offset nnnn.	1. **DIMM.** 2. System board.
0250 System battery error—System battery is dead.	**Replace the backup battery and run BIOS Setup Utility to reset the time and date.**
0251 System CMOS checksum bad— Default configuration used.	**Replace the backup battery and run BIOS Setup Utility to reset the time and date.**
0252 Password checksum bad—The password is cleared.	**Reset the password by running BIOS Setup Utility.**
0260 System timer error.	1. **Replace the backup battery and run BIOS Setup Utility to reset the time and date.** 2. System board.
0270 Real-time clock error.	1. **Replace the backup battery and run BIOS Setup Utility to reset the time and date.** 2. System board.
0271 Date and time error—Neither the date nor the time is set in the computer.	**Run BIOS Setup Utility to reset the time and date.**
0280 Previous boot incomplete—Default configuration used.	1. **Load "Setup Default" in BIOS Setup Utility.** 2. DIMM. 3. System board.
02F4 DMA test failed.	1. **Load Setup Defaults in BIOS Setup Utility.** 2. Replace the backup battery. 3. System board.
02F5 DMA test failed.	1. **DIMM.** 2. System board.
02F6 Software NMI failed	1. **DIMM.** 2. System board.
02F7 Fail-safe timer NMI failed	1. **DIMM.** 2. System board.

Symptom or error	FRU or action, in sequence
1802 Unauthorized network card is plugged in—Turn off and remove the miniPCI network card.	1. **Remove Mini PCI network card.** 2. System board.
1803 Unauthorized daughter card is plugged in—Turn off and remove the daughter card.	1. **Remove the daughter card that you installed.** 2. System board.
1810 Hard disk partition layout error.	1. **If the Access IBM Predesktop Area has been previously disabled, then go to the BIOS Setup Utility by pressing F1 to open the BIOS Setup Utility. Select Security --> Predesktop Area --> Access IBM Predesktop Area. Set this item to Disabled. Save and exit.** 2. If the Access IBM Predesktop Area has not been previously disabled, press Enter to load Access IBM Predesktop Area. Then run **RECOVER TO FACTORY CONTENTS** in Access IBM Predesktop Area. 3. If item 2 failed, press F3 in the Welcome screen in **RECOVER TO FACTORY CONTENTS**. Run FDISK, and then delete all partitions. Run **RECOVER TO FACTORY CONTENTS** in Access IBM Predesktop Area again. 4. If item 3 failed, select CD-ROM boot in **Startup** in Access IBM Predesktop Area. Boot from the Recovery CD and perform full recovery from it. 5. If item 4 failed, replace the hard disk drive.

Symptom or error	FRU or action, in sequence
2000 Hard Drive Active Protection sensor diagnostics failed. Press <Esc> to continue. Press <F1> to enter SETUP	1. Undock docking station or port replicator if it is attached to the ThinkPad computer, and place the computer on a horizontal surface. Do not apply any physical shock to the computer. 2. Run **Diagnostics** --> **ThinkPad Devices** --> **HDD Active Protection Test**.
2010 Warning: Your internal hard disk drive (HDD) may not function correctly on this system. Ensure that your HDD is supported on this system and that the latest HDD firmware is installed.	Inform the following information to the customer: If in the primary bay the customer is using a non-IBM or non-Lenovo hard disk drive (HDD), or an old generation IBM HDD which is not supported by this system, with the risk in mind, the customer can still use it by pressing ESC. If in the primary drive bay the customer is using a supported IBM/Lenovo HDD with an old firmware, the customer needs to update its firmware to the latest. The latest version is available at `http://www.lenovo.com/think/support`

Error messages

Symptom or error	FRU or action, in sequence
Device address conflict.	1. **Load “Setup Defaults” in the BIOS Setup Utility**. 2. Backup battery. 3. System board.
Allocation error for device.	1. **Load “Setup Defaults” in the BIOS Setup Utility**. 2. Backup battery. 3. System board.
Failing bits: nnnn.	1. **DIMM**. 2. System board.
Invalid system configuration data.	1. **DIMM**. 2. System board.
I/O device IRQ conflict.	1. **Load “Setup Defaults” in the BIOS Setup Utility**. 2. Backup battery. 3. System board.
Operating system not found.	1. Check that the operating system has no failure and is installed correctly. 2. **Enter the BIOS Setup Utility and see whether the hard disk drive and the diskette drive are properly identified**. 3. Reseat the hard disk drive. 4. Reinstall the operating system. 5. Diskette drive. 6. Hard disk drive. 7. System board.
Hibernation error.	1. **Restore the system configuration to what it was before the computer entered hibernation mode**. 2. If memory size has been changed, re-create the hibernation file.
Fan error.	**Fan**.
Thermal sensing error.	**System board**.
Authentication of system services failed. Press <Esc> to resume.	**The Predesktop Area in the HDD is corrupted. Restore it from a recovery CD.**

Beep symptoms

Symptom or error	FRU or action, in sequence
One beep and a blank, unreadable, or flashing LCD.	1. **Reseat the LCD connector**. 2. LCD assembly. 3. External CRT. 4. System board.
One long and two short beeps, and a blank or unreadable LCD.	1. **System board**. 2. LCD assembly. 3. DIMM.
Two short beeps with error codes.	**POST error. See "Numeric error codes" on page 62.**
Two short beeps and a blank screen.	1. **System board**. 2. DIMM.
Three short beeps, pause, three more short beeps, and one short beep.	1. **DIMM**. 2. System board
One short beep, pause, three short beeps, pause, three more short beeps, and one short beep.	
Only the cursor appears.	**Reinstall the operating system**.
Four cycles of four short beeps and a blank screen.	**System board** (security chip)
Five short beeps and a blank screen.	**System board**

No-beep symptoms

Symptom or error	FRU or action, in sequence
No beep, power-on indicator on, LCD blank, and no POST.	1. **Make sure that every connector is connected tightly and correctly**. 2. DIMM. 3. System board.
No beep, power-on indicator on, and LCD blank during POST.	1. **Reseat DIMM**. 2. System board.
The power-on password prompt appears.	A power-on password or a supervisor password is set. Type the password and press **Enter**.
The hard-disk password prompt appears.	A hard-disk password is set. Type the password and press **Enter**.
The DOS full screen looks smaller than it should.	Start the ThinkPad Configuration program and set the **Screen expansion** function.

LCD-related symptoms

Important

The TFT LCD for the notebook computer contains many thin-film transistors (TFTs). The presence of a small number of dots that are missing, discolored, or always lighted is characteristic of TFT LCD technology, but excessive pixel problems can cause viewing concerns. The LCD should be replaced if the number of missing, discolored, or lighted dots in any background is:

- **XGA:** 8 or more bright dots, 8 or more dark dots, or a total of 9 or more bright and dark dots.
- **SXGA+:** 11 or more bright dots, 13 or more dark dots, or a total of 16 or more bright and dark dots.

Note: A bright dot means a pixel is always on (white or color.) A dark dot means a pixel is always off (black color.)

Symptom or error	FRU or action, in sequence
No beep, power-on indicator on, and a blank LCD during POST.	**System board**.
• LCD backlight not working. • LCD too dark. • LCD brightness cannot be adjusted. • LCD contrast cannot be adjusted.	1. **Reseat the LCD connectors**. 2. LCD assembly. 3. System board.
• LCD screen unreadable. • Characters missing pixels. • Screen abnormal. • Wrong color displayed.	1. **See important note for “LCD-related symptoms.”** 2. Reseat all LCD connectors. 3. LCD assembly. 4. System board.
Horizontal or vertical lines displayed on LCD.	**LCD assembly**.

Intermittent problems

Intermittent system hang problems can be due to a variety of causes that have nothing to do with a hardware defect, such as cosmic radiation, electrostatic discharge, or software errors. FRU replacement should be considered only when a problem recurs.

When analyzing an intermittent problem, do the following:
1. Run the diagnostic test for the system board in loop mode **at least 10 times**.
2. If no error is detected, do **not** replace any FRUs.
3. If any error is detected, replace the FRU shown by the FRU code. Rerun the test to verify that no more errors exist.

Undetermined problems

If the diagnostic tests did not identify the adapter or device that has failed, if wrong devices are installed, or if the system simply is not operating, follow these procedures to isolate the failing FRU (do not isolate FRUs that have no defects).

Verify that all attached devices are supported by the computer.

Verify that the power supply being used at the time of the failure is operating correctly. (See “Power system checkout” on page 41.)
1. Turn off the computer.
2. Visually check each FRU for damage. Replace any damaged FRU.
3. Remove or disconnect all of the following devices:
   a. Non-ThinkPad devices
   b. Devices attached to the port replicator
   c. Printer, mouse, and other external devices
   d. Battery pack
   e. Hard disk drive
   f. External diskette drive
   g. DIMM
   h. CD-ROM and diskette drive in the Ultrabay
   i. PC Cards
4. Turn on the computer.
5. Determine whether the problem has been solved.
6. If the problem does not recur, reconnect the removed devices one at a time until you find the failing FRU.
7. If the problem remains, replace the following FRUs one at a time (do not replace a nondefective FRU):
   a. System board
   b. LCD assembly

FRU replacement notices

This section contains notices related to removing and replacing parts. Read this section carefully before replacing any FRU.

Screw notices

Loose screws can cause a reliability problem. In the ThinkPad computer, this problem is addressed with special nylon-coated screws that have the following characteristics:

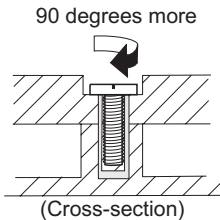
- They maintain tight connections.
- They do not easily come loose, even with shock or vibration.
- They are harder to tighten.
- Each one should be used only once.

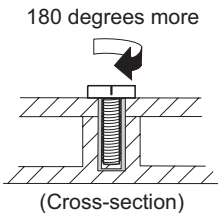
Do the following when you service this machine:

- Keep the screw kit (for the P/N, see "Miscellaneous parts" on page 253) in your tool bag.
- Always use new screws.
- Use a torque screwdriver if you have one.

Tighten screws as follows:

- **Plastic to plastic**

  Turn an additional **90 degrees** after the screw head touches the surface of the plastic part:

- **Logic card to plastic**

  Turn an additional **180 degrees** after the screw head touches the surface of the logic card:

- **Torque driver**

  If you have a torque driver, refer to the "Torque" column for each step.

- Make sure that you use the correct screw. If you have a torque screwdriver, tighten all screws firmly to the torque shown in the table. **Never use a screw that you removed. Use a new one. Make sure that all of the screws are tightened firmly.**

Retaining serial numbers

This section includes the following descriptions:
- "Restoring the serial number of the system unit"
- "Retaining the UUID" on page 73
- "Reading or writing the ECA information" on page 73

Restoring the serial number of the system unit

When the computer was manufactured, the EEPROM on the system board was loaded with the serial numbers of the system and all major components. These numbers need to remain the same throughout the life of the computer.

If you replace the system board, you must restore the serial number of the system unit to its original value.

Before replacing the system board, save the original serial number by doing the following:

1. Install the ThinkPad Hardware Maintenance Diskette Version 1.73 or later, and restart the computer.
2. From the main menu, select **1. Set System Identification**.
3. Select **2. Read S/N data from EEPROM**.

The serial number of each device in your computer is displayed; the serial number of the system unit is listed as follows:

20: Serial number

Write down that number.

Note: The serial number of the system unit is also written on the label attached to the bottom of the computer.

After you have replaced the system board, restore the serial number by doing the following:

1. Install the ThinkPad Hardware Maintenance Diskette Version 1.73 or later and restart the computer.
2. From the main menu, select **1. Set System Identification**.
3. Select **1. Add S/N data from EEPROM**.

   Follow the instructions on the screen.

Retaining the UUID

The Universally Unique Identifier (UUID) is a 128-bit number uniquely assigned to your computer at production and stored in the EEPROM of your system board. The algorithm that generates the number is designed to provide unique IDs until the year A.D. 3400. No two computers in the world have the same number.

When you replace the system board, you must set the UUID on the new system board as follows:

1. Install the ThinkPad Hardware Maintenance Diskette Version 1.73 or later, and restart the computer.
2. From the main menu, select **4. Assign UUID**.

   A new UUID is created and written. If a valid UUID already exists, it is not overwritten.

Reading or writing the ECA information

Information on Engineering Change Announcements (ECA) are stored in the EEPROM of the system board. The electronic storage of this information simplifies the procedure to check if the ECA has been previously applied to a machine. The machine does not need to be disassembled to check for the ECA application.

To check what ECAs have been previously applied to the machine, use the ECA Information Read/Write function on the ThinkPad Hardware Maintenance Diskette Version 1.73 or later.

1. Insert the ThinkPad Hardware Maintenance Diskette Version 1.73 or later, and restart the computer.
2. From the main menu, select **6. Set ECA Information**.
3. To read ECA information, select **2. Read ECA/rework number from EEPROM** and follow the instruction.
4. To read box build date, select **5. Read box build date from EEPROM**, and follow the instruction on the screen.

After an ECA has been applied to the machine, the EEPROM must be updated to reflect the ECA's application. Use the ThinkPad Hardware Maintenance Diskette Version 1.73 or later to update the EEPROM.

Note: Only the ECA number is stored in the EEPROM. The machine type of the ECA is assumed be the same as the machine type of the machine that had the ECA applied to it.

1. Insert the ThinkPad Hardware Maintenance Diskette Version 1.73 or later, and restart the computer.
2. From the main menu, select **6. Set ECA Information**.

3. To write ECA information, select **1. Write ECA/rework number from EEPROM**, and follow the instruction.
4. To write box build date, select **4. Write box build date from EEPROM**, and follow the instruction on the screen.

If the system board is being replaced, try to read the ECA information from the old system board and transfer the information to the new system. If the system board is inoperable, this will not be possible.

Removing and replacing a FRU

This section presents directions and drawings for use in removing and replacing a FRU. Be sure to observe the following general rules:

1. Do not try to service any computer unless you have been trained and certified. An untrained person runs the risk of damaging parts.
2. Before replacing any FRU, review “FRU replacement notices” on page 71.
3. Begin by removing any FRUs that have to be removed before the failing FRU. Any such FRUs are listed at the top of the page. Remove them in the order in which they are listed.
4. Follow the correct sequence in the steps for removing the FRU, as given in the drawings by the numbers in square callouts.
5. When turning a screw to replace a FRU, turn it in the direction as given by the arrow in the drawing.
6. When removing the FRU, move it in the direction as given by the arrow in the drawing.
7. To put the new FRU in place, reverse the removal procedure and follow any notes that pertain to replacement. For information about connecting and arranging internal cables, see “Locations” on page 153.
8. When replacing a FRU, use the correct screw as shown in the procedures.

⚠ **DANGER**

Before removing any FRU, turn off the computer, unplug all power cords from electrical outlets, remove the battery pack, and then disconnect any interconnecting cables.

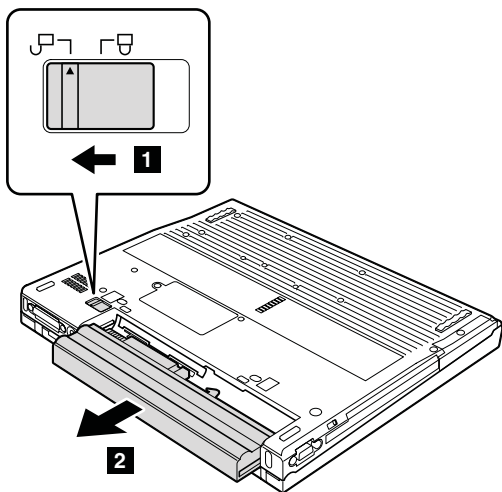
Attention: After replacing a FRU, do not turn on the computer until you have made sure that all screws, springs, and other small parts are in place and none are loose inside the computer. Verify this by shaking the computer gently and listening for rattling sounds. Metallic parts or metal flakes can cause electrical short circuits.

Attention: The system board is sensitive to, and can be damaged by, electrostatic discharge. Before touching it, establish personal grounding by touching a ground point with one hand or by using an electrostatic discharge (ESD) strap (P/N 6405959).

1010 Battery pack

⚠ **DANGER**

Use only the battery specified in the parts list for your computer. Any other battery could ignite or explode.

Holding the battery release lever in the unlocked position **1**, remove the battery pack **2**.

When installing: Install the battery pack along the slide rails on the left and right sides of the battery-pack slot. Then make sure that the battery latch is locked.

1020 Ultrabay Enhanced device (for R52 series)

Note

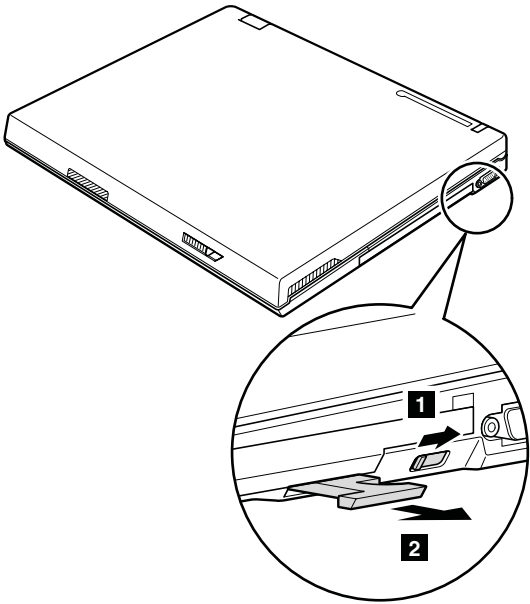
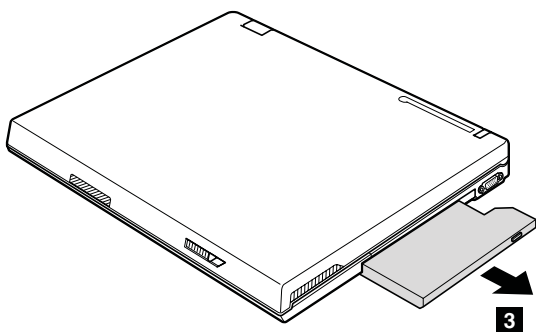
Ultrabay Enhanced does not accept any of the following devices:

- Ultrabay Plus devices
- Ultrabay 2000 devices

For devices compatible with the Ultrabay Enhanced, see “Optional FRUs” on page 259.

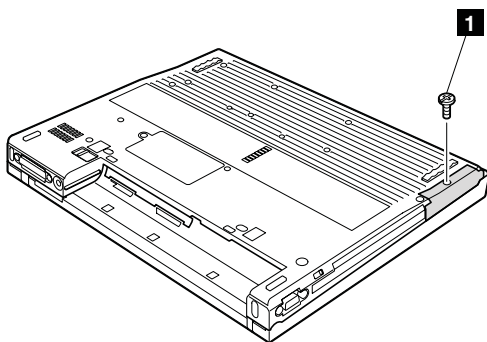
When you release the switch in step **1**, the lever pops out. In step **2**, pull the lever a little to release the device from the bay.

(continued)

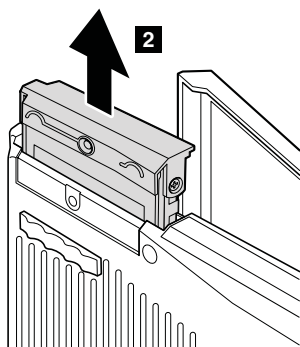
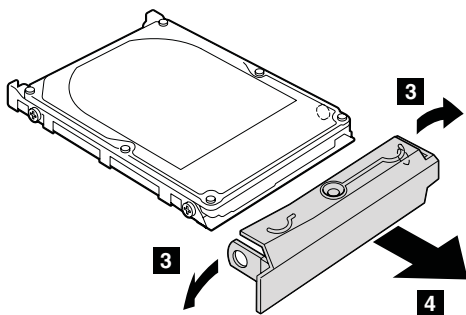
3

1030 Hard disk drive

Attention

- **Do not drop the hard disk drive or apply any physical shock to it.** The hard disk drive is sensitive to physical shock. Improper handling can cause damage and permanent loss of data.
- Before removing the drive, have the user make a backup copy of all the information on it if possible.
- Never remove the drive while the system is operating or is in suspend mode.

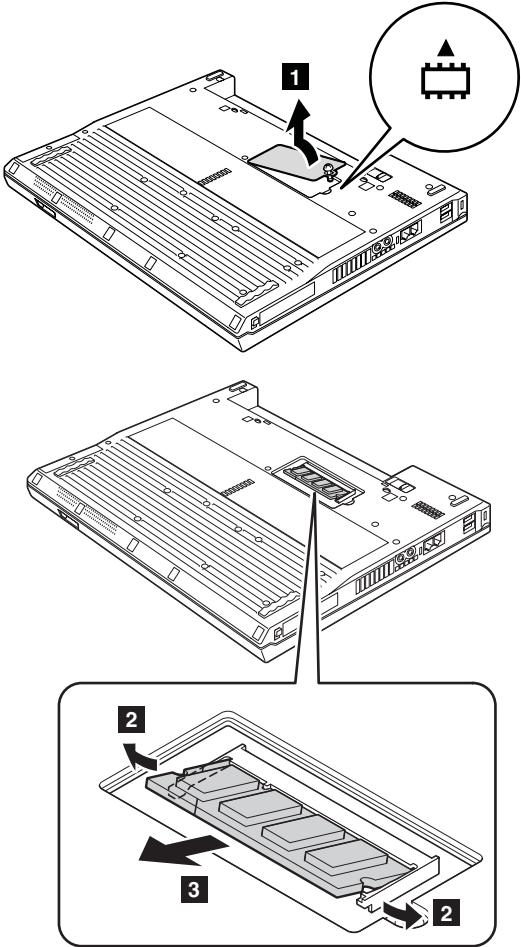
For access, remove this FRU:
- “1010 Battery pack” on page 76

Note: The hard disk is attached to the cover.

Step	Screw (quantity)
1	HDD screw (1) or security screw (1)
Note: Use a 2.5-mm Allen wrench to remove the security screw.	

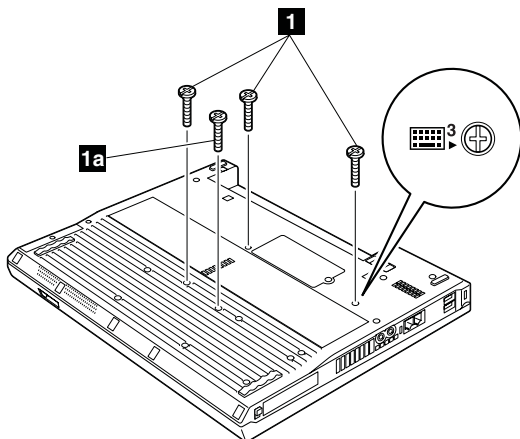
(continued)

When installing: Make sure that the hard-disk connector is attached firmly.

1040 DIMM (optional)

For access, remove this FRU:

- "1010 Battery pack" on page 76

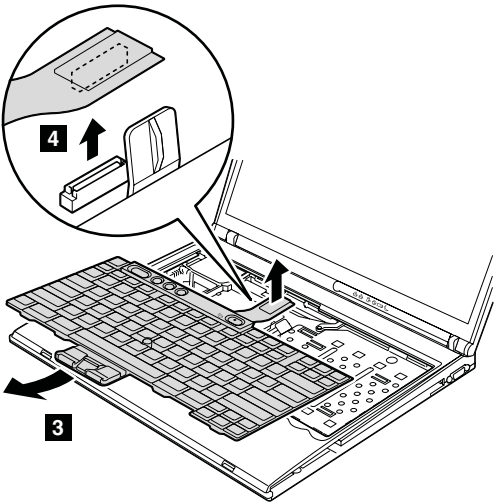
Note: Loosen the screw **1**, but do not remove it.

When installing: Insert the notched end of the DIMM into the socket. Press the DIMM firmly, and pivot it until it snaps into the place. Make sure that it is firmly fixed in the slot and does not move easily.

1050 Keyboard

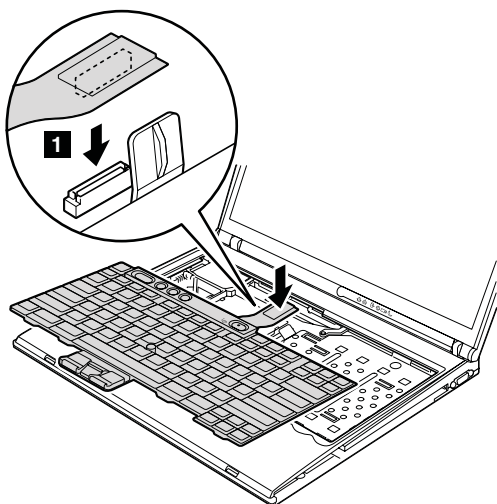
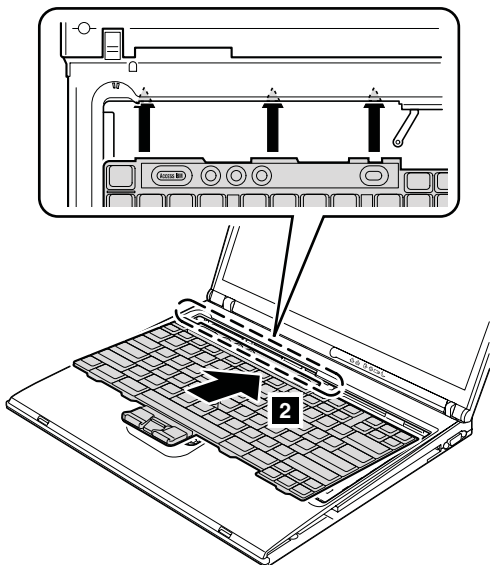
For access, remove this FRU:
- "1010 Battery pack" on page 76

Screw **1a** is only for the models with 14.1-in. LCD.

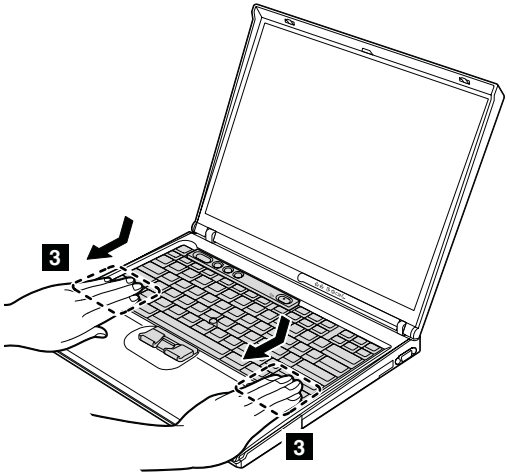
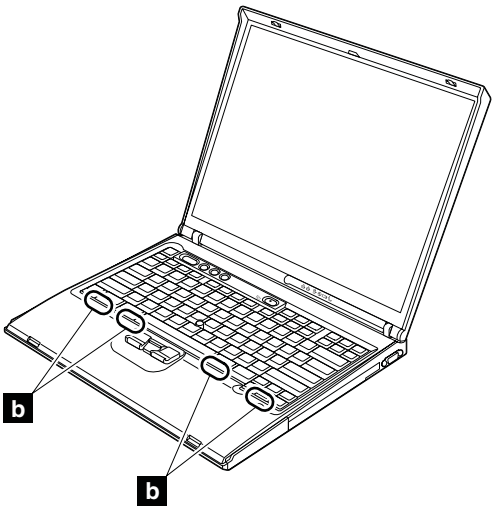
Step	Icon	Screw (quantity)	Color	Torque
1	3	M2 × 12 mm, bind-head, nylon-coated (3)	Black	0.245 Nm (2.5 kgfcm)
1a		M2 × 12 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

(continued)

Press the part indicated by the arrow **2** in the direction of the arrow. This releases the latches of the keyboard from the frame, so that the front side of the keyboard pops out.

When installing: Make sure that the connector **4** is firmly attached.

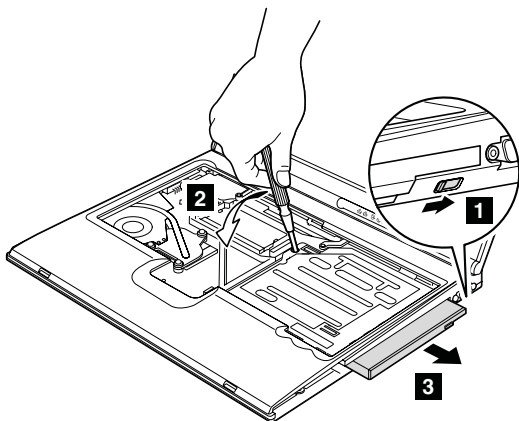
When installing:

1. Attach the connector **1**.

2. Install the keyboard so that the keyboard edges are under the frame.

(continued)

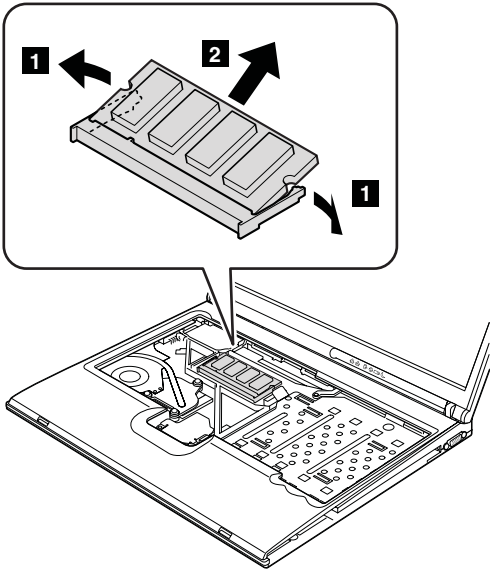
3. To make sure that the front edge of the keyboard is housed firmly, gently press the keys with your fingers and try to slide the keyboard towards you.

4. Make sure that all the projections on the front side of the keyboard **b** are firmly attached under the frame.

5. Secure the keyboard from the underside of the computer, using the new screws provided with the keyboard.

1060 Ultrabay device (for R50e series)

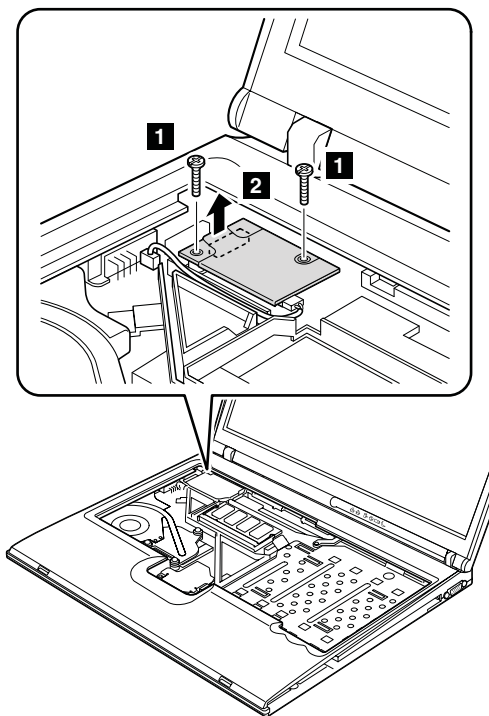
For access, remove these FRUs in order:
- “1010 Battery pack” on page 76
- “1050 Keyboard” on page 82

Holding the switch in the direction of arrow **1**, and push the Ultrabay device out from the bay by using a screwdriver **2** as in this figure. Then pull out the Ultrabay device with your hand **3**.

1070 DIMM (standard)

For access, remove these FRUs in order:

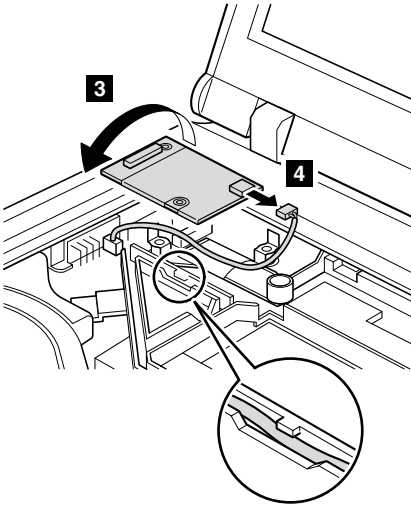
- “1010 Battery pack” on page 76
- “1050 Keyboard” on page 82

When installing: Insert the notched end of the DIMM into the socket. Press the DIMM firmly, and pivot it until it snaps into the place. Make sure that it is firmly fixed in the slot and does not move easily.

1080 Modem daughter card (MDC-2)

For access, remove these FRUs in order:
- “1010 Battery pack” on page 76
- “1050 Keyboard” on page 82

Step	Screw (quantity)	Color	Torque
1	M2 × 12 mm, bind-head, nylon-coated (2)	Black	0.245 Nm (2.5 kgfcm)

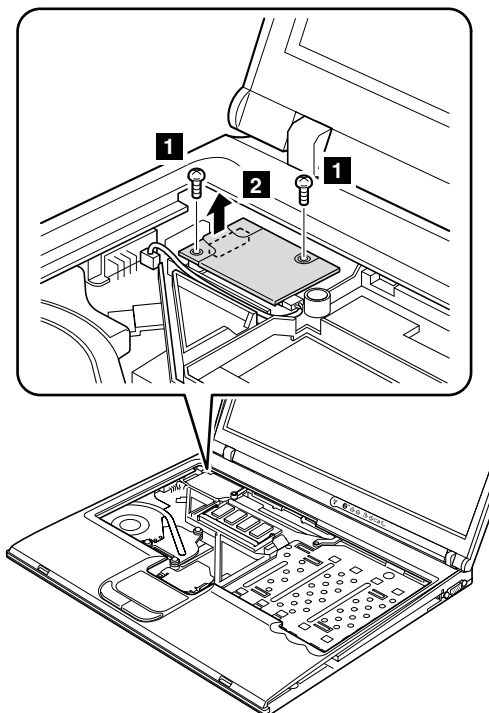
In step 2 , remove the card by pulling the tab with your fingers in the direction of the arrow.

(continued)

Turn the card over **3**, and detach the modem connector **4**.

When installing: Make sure that connector **4** and the connector on the underside of the card are firmly attached. Then place the cable to fit in the cable guide as in the figure.

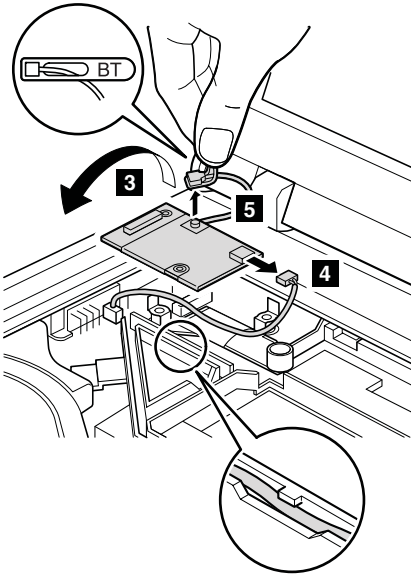
1090 Bluetooth/Modem daughter card (BMDC-3) (for R52 series)

For access, remove these FRUs in order:

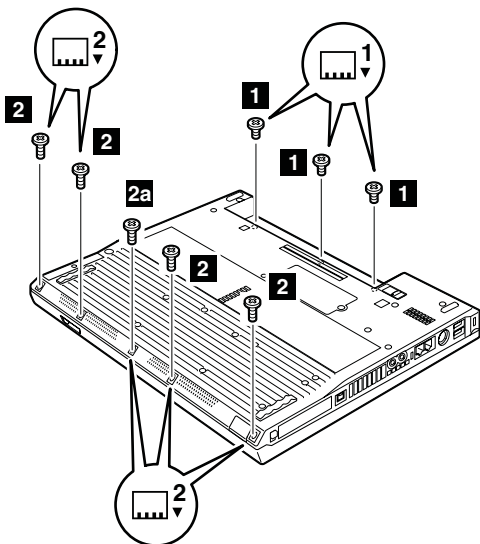
- “1010 Battery pack” on page 76
- “1050 Keyboard” on page 82

Step	Screw (quantity)	Color	Torque
1	M2 × 12 mm, bind-head, nylon-coated (2)	Black	0.245 Nm (2.5 kgfcm)

In step 2 , remove the card by pulling the tab with your fingers in the direction of the arrow.

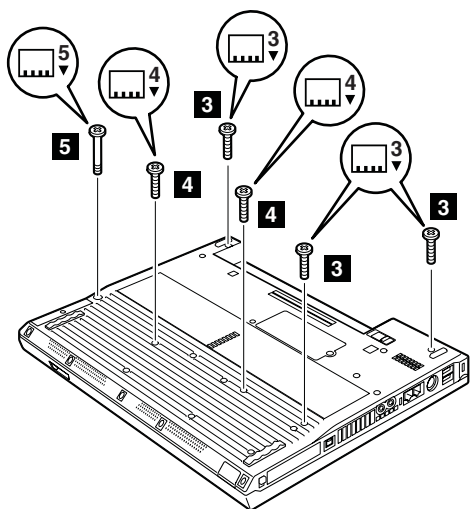
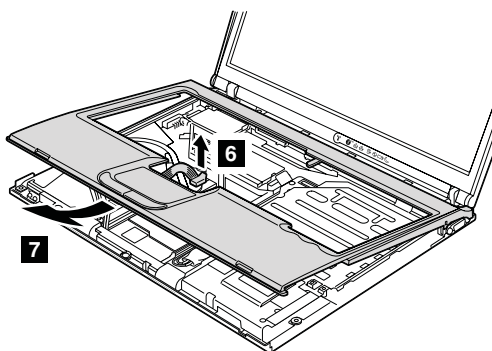
(continued)

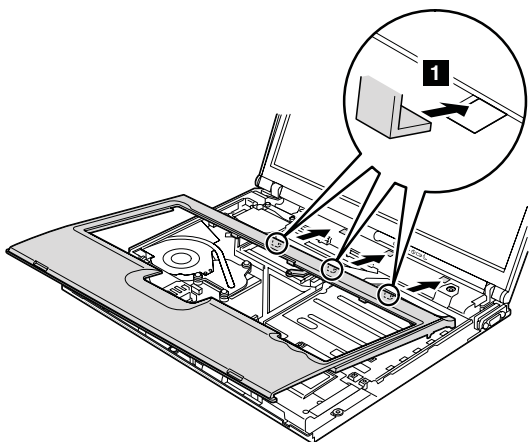
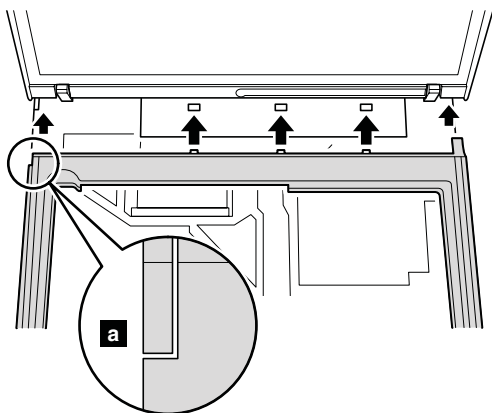
Turn the card over **3**, and detach the modem connector **4**. If the *Bluetooth* wireless antenna jack has a tab marked ″BT″, unplug the jack by pulling the tab with your fingers. If the antenna jack does not have the tab, unplug the jack by using the removal tool antenna RF connector (P/N: 08K7159) or pick the connetor with your fingers and gently unplug it in direction of the arrow **5**.

When installing: Make sure that connector **4**, the jack **5**, and the connector on the underside of the card are firmly attached. Then place the cable to fit in the cable guide as in the figure.

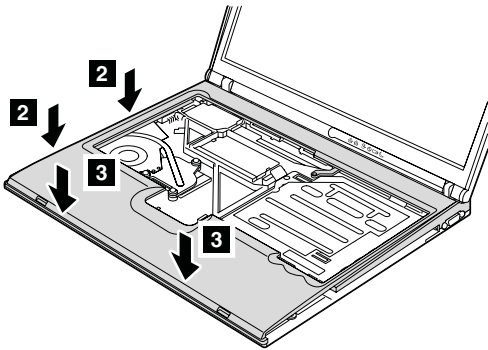
1100 Keyboard bezel

For access, remove these FRUs in order:
- “1010 Battery pack” on page 76
- “1050 Keyboard” on page 82

Screw **2a** is only for the models with 15.0-in. LCD.

Step	Icon	Screw (quantity)	Color	Torque
1	1	M2 × 3 mm, small-head, nylon-coated (3)	Silver	0.245 Nm (2.5 kgfcm)
2	2	M2 × 6 mm, bind-head, nylon-coated (4)	Black	0.245 Nm (2.5 kgfcm)
2a		M2 × 6 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

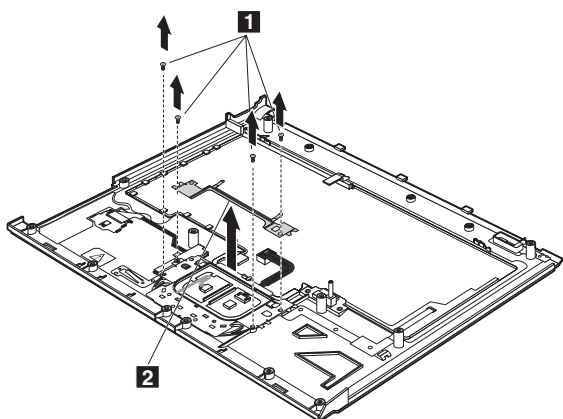
(continued)

Step	Icon	Screw (quantity)	Color	Torque
3	3	M2 × 12 mm, bind-head, nylon-coated (3)	Silver	0.245 Nm (2.5 kgfcm)
4	4	M2 × 12 mm, bind-head, nylon-coated (2)	Silver	0.245 Nm (2.5 kgfcm)
5	5	M2 × 18.9 mm, special (1)	Silver	0.245 Nm (2.5 kgfcm)

When installing:

1. Place the keyboard bezel so that the three latches are fixed in place **1**.

While inserting the three latches, align the top-left corner of the keyboard bezel as in figure **a**.

(continued)

2. Press the left edges **2** and the front edges **3** of the keyboard bezel until the latches are snapped.

3. Secure the keyboard bezel from the underside of the computer with the screws.

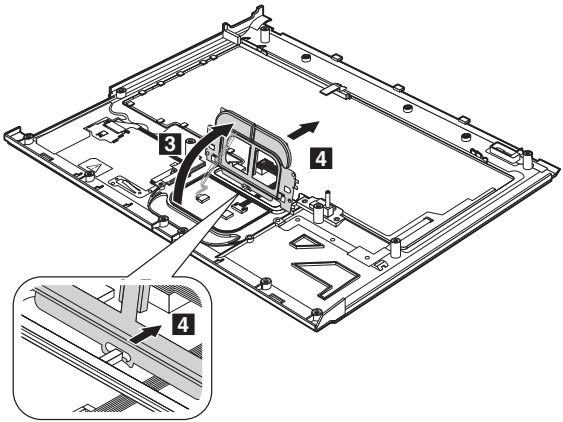
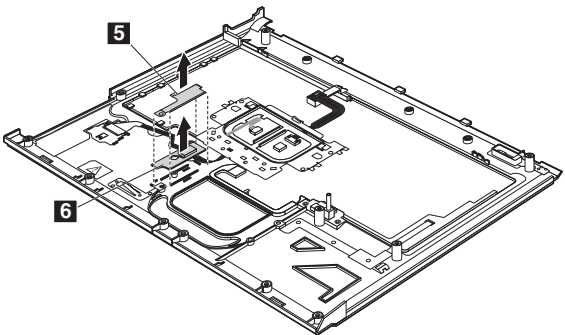
1110 Touch pad and Fingerprint reader (for R52 series)

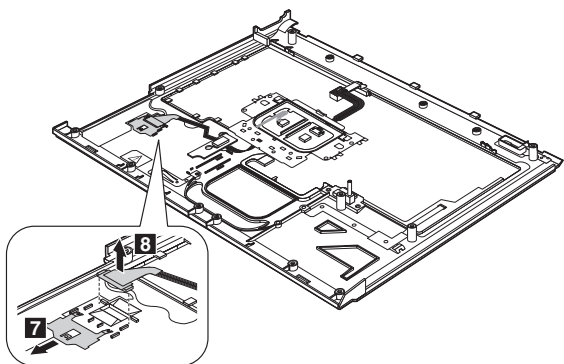
For access, remove these FRUs in order:

- “1010 Battery pack” on page 76
- “1030 Hard disk drive” on page 79
- “1050 Keyboard” on page 82
- “1100 Keyboard bezel” on page 92

Step	Screw (quantity)	Color	Torque
1	M2 × 5 mm, flat-head, nylon-coated (4)	Silver	0.245 Nm (2.5 kgfcm)

Note: The fingerprint reader is connected to the touch pad assembly.

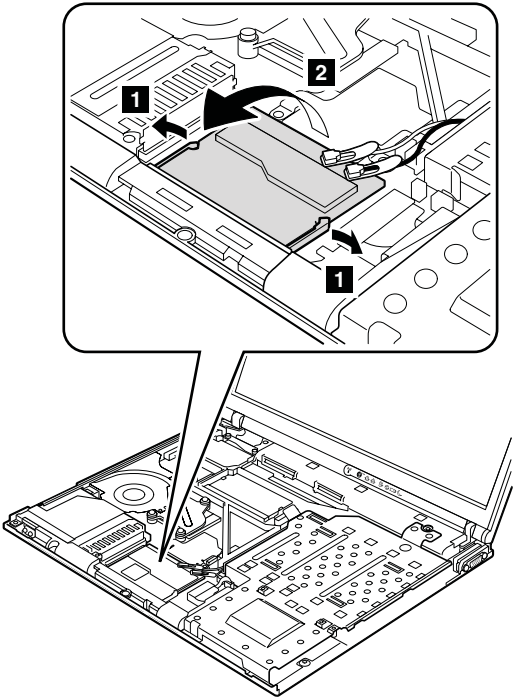
(continued)

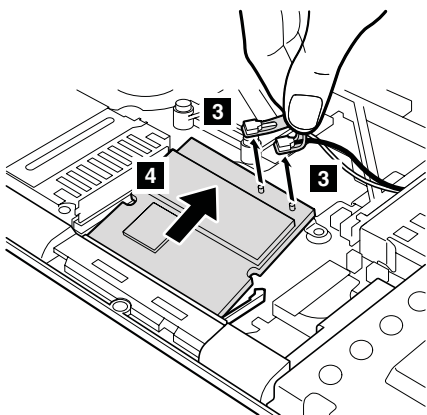
After removing the metal plate in step **2**, flip up the touch pad buttons **3** and detach it **4**.

Remove the metal plate in step **5** in order to remove the touchpad assembly.

(continued)

Slide out the metal plate **7** securing the fingerprint reader before removing it.

When installing: Make sure that the connectors are firmly attached to the touch pad.

1120 Mini PCI adapter

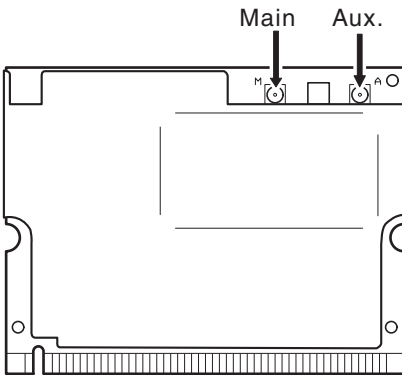
For access, remove these FRUs in order:

- “1010 Battery pack” on page 76
- “1030 Hard disk drive” on page 79
- “1050 Keyboard” on page 82
- “1100 Keyboard bezel” on page 92

(continued)

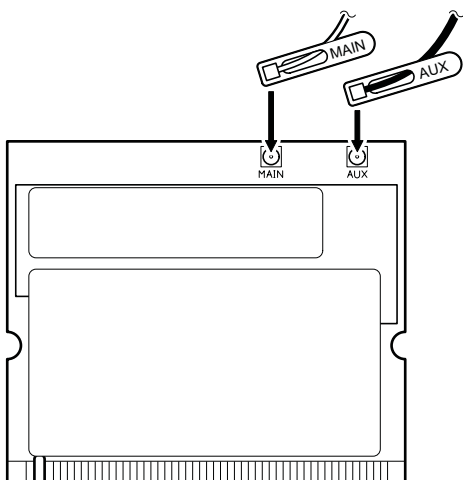
If the wireless antenna jacks have tabs marked ″MAIN″ or ″AUX″, unplug the jacks by pulling the tabs with your fingers. If the antenna jacks do not have the tabs, unplug the jacks by using the removal tool antenna RF connector (P/N: 08K7159) or pick the connectors with your fingers and gently unplug it in direction of the arrow **3** .

When installing: Plug in the wireless antenna cable as follows:

Intel PRO/Wireless LAN 2100 3B Mini PCI Adapter or ***Intel PRO Wireless 2200BG Mini-PCI Adapter***

In case of the antenna jacks have the tabs, plug the gray antenna cable with the tab marked **MAIN** into jack **M**, and the black antenna cable with the tab marked **AUX** into jack **A**.

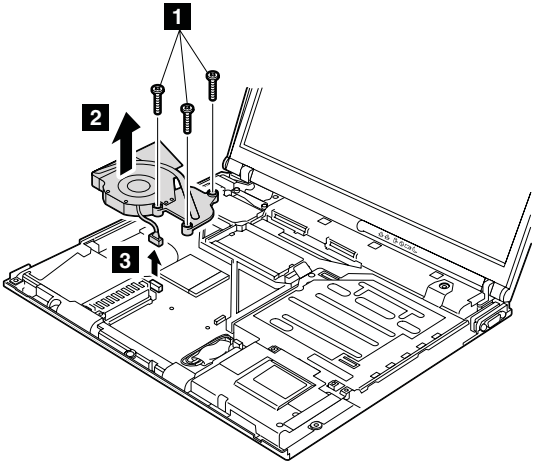
In case of the antenna jacks do not have the tabs, plug the gray cable to jack **M**, and the black cable to jack **A**.

ThinkPad 11a/b/g Wireless LAN Mini PCI Adapter, ***ThinkPad 11b/g Wireless LAN Mini PCI Adapter***

In case of the antenna jacks have the tabs, plug the gray antenna cable with the tab marked **MAIN** into jack **MAIN**, and the black antenna cable with the tab marked **AUX** into jack **AUX**.

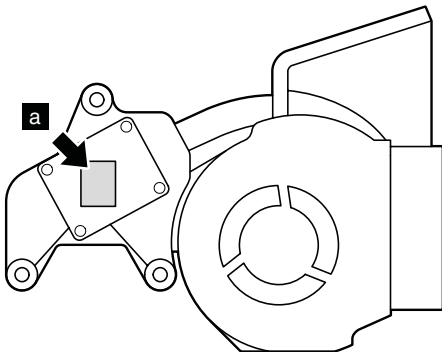
In case of the antenna jacks do not have the tabs, plug the gray cable to jack **MAIN**, and the black cable to jack **AUX**.

Insert the notched end of the card into the socket, and then press the card firmly. Pivot the card until it snaps into place. Make sure that it is firmly fixed in the slot and does not move easily.

1130 Fan assembly

For access, remove these FRUs in order:

- “1010 Battery pack” on page 76
- “1030 Hard disk drive” on page 79
- “1050 Keyboard” on page 82
- “1100 Keyboard bezel” on page 92

Step	Screw (quantity)	Color	Torque
1	M2 × 10 mm, flat-head, nylon-coated (3)	Black	0.245 Nm (2.5 kgfcm)

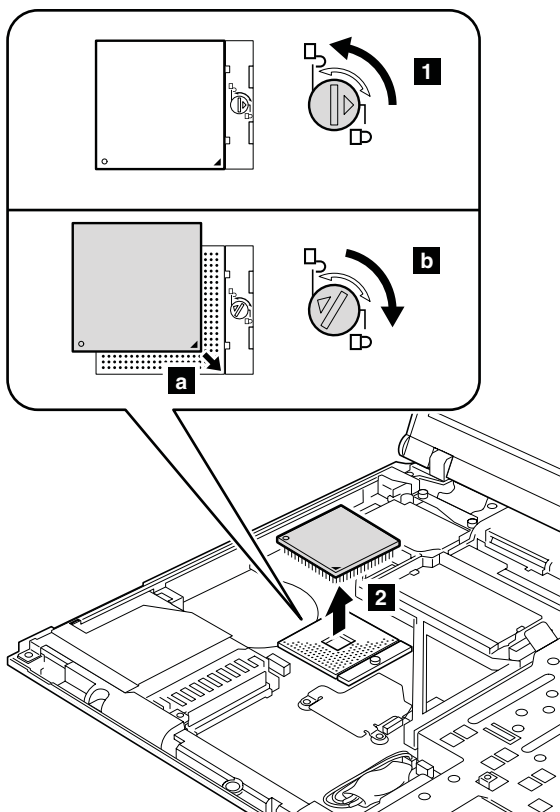
When installing:

1. Make sure that the connector **3** is firmly attached.
2. Apply thermal grease on the part marked **a** in this figure.

(Bottom view of the fan assembly)

1140 CPU

For access, remove these FRUs in order:

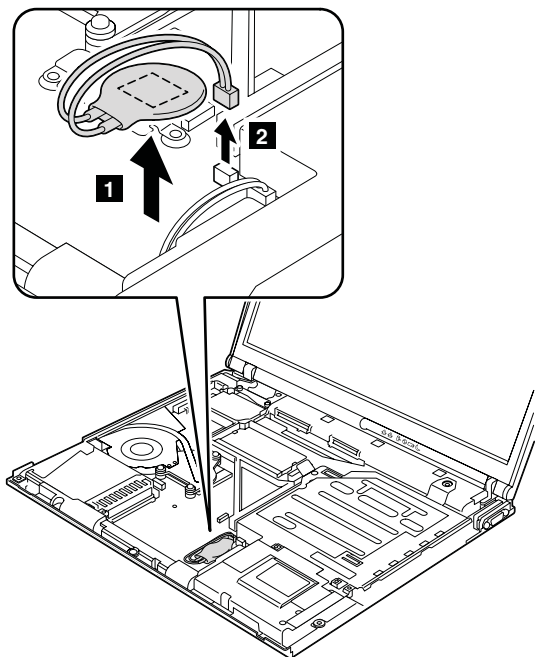
- "1010 Battery pack" on page 76
- "1030 Hard disk drive" on page 79
- "1050 Keyboard" on page 82
- "1100 Keyboard bezel" on page 92
- "1130 Fan assembly" on page 103

Rotate the head of the screw in the direction of arrow **1** to release the lock; then remove the CPU **2**.

When installing: Place the CPU on the CPU socket **a**, and then rotate the head of the screw in the direction of arrow **b** to secure the CPU.

1150 Backup battery

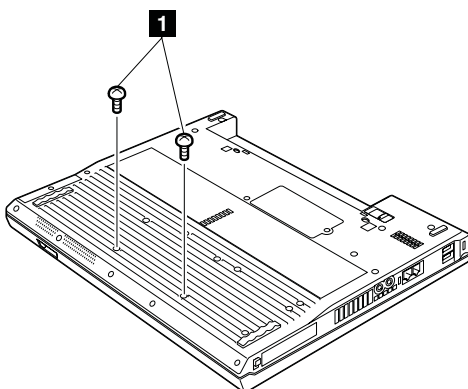
⚠ **DANGER**

Use only the battery specified in the parts list for your computer. Any other battery could ignite or explode.

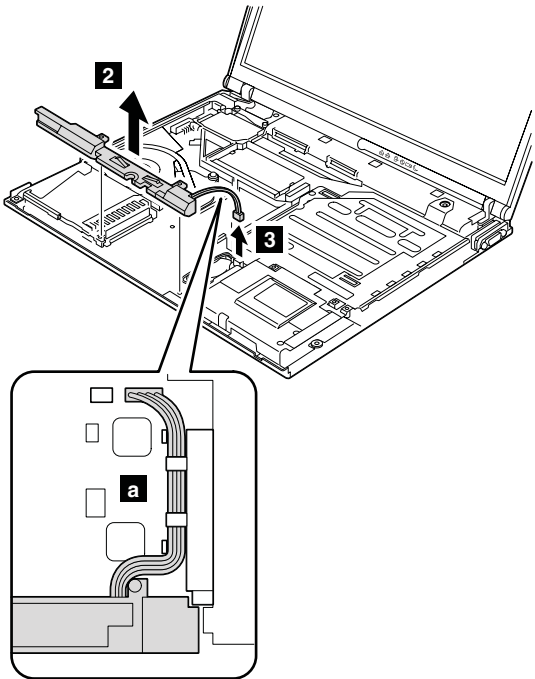
For access, remove these FRUs in order:
- "1010 Battery pack" on page 76
- "1030 Hard disk drive" on page 79
- "1050 Keyboard" on page 82
- "1100 Keyboard bezel" on page 92

When installing: Make sure that the battery connector **2** is firmly attached.

1160 Speaker assembly

For access, remove these FRUs in order:

- "1010 Battery pack" on page 76
- "1030 Hard disk drive" on page 79
- "1050 Keyboard" on page 82
- "1100 Keyboard bezel" on page 92

Step	Screw (quantity)	Color	Torque
1	M2 × 12 mm, bind-head, nylon-coated (2)	Black	0.245 Nm (2.5 kgfcm)

(continued)

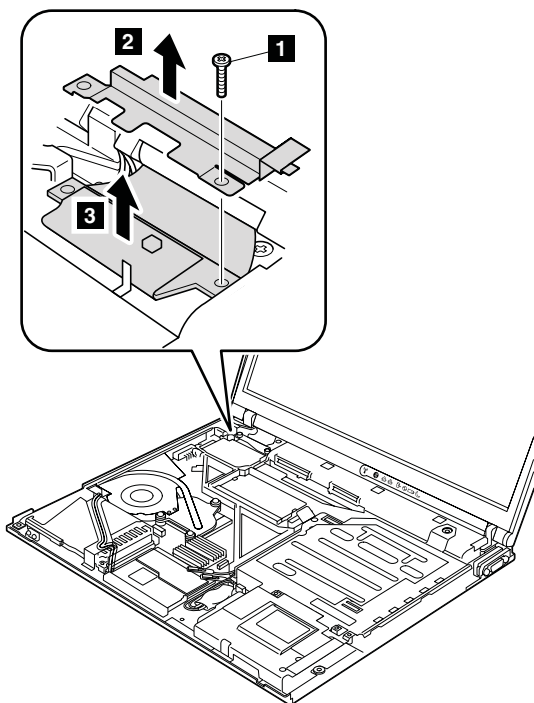
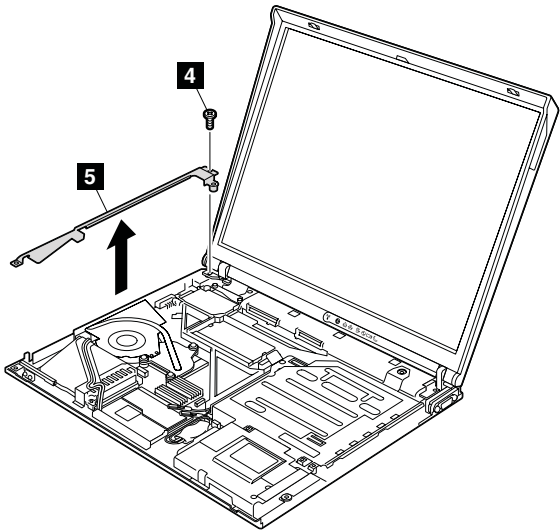
In step **3**, release the speaker cables from the cable guide **a**.

When installing: Make sure that the connector **3** is firmly attached. Then route the cable as in **a**.

1170 IEEE 1394 (for R52 series)

For access, remove these FRUs in order:

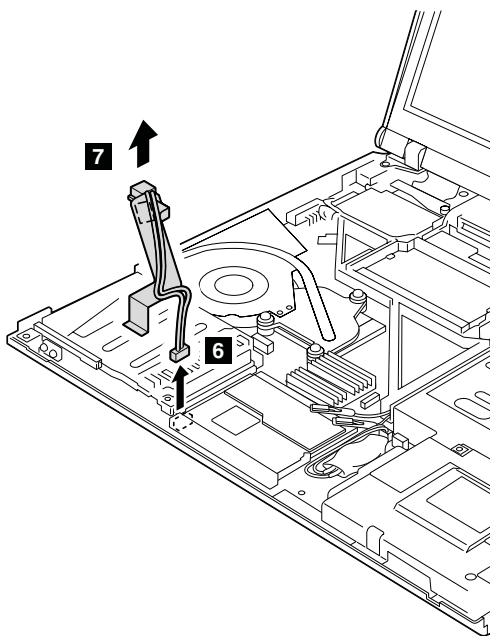
- “1010 Battery pack” on page 76
- “1030 Hard disk drive” on page 79
- “1050 Keyboard” on page 82
- “1100 Keyboard bezel” on page 92
- “1160 Speaker assembly” on page 106

Note

Some models do not have the IEEE 1394 cable.

Step	Screw (quantity)	Color	Torque
1	M2 × 12 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

(continued)

Step	Screw (quantity)	Color	Torque
4	M2 × 6 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

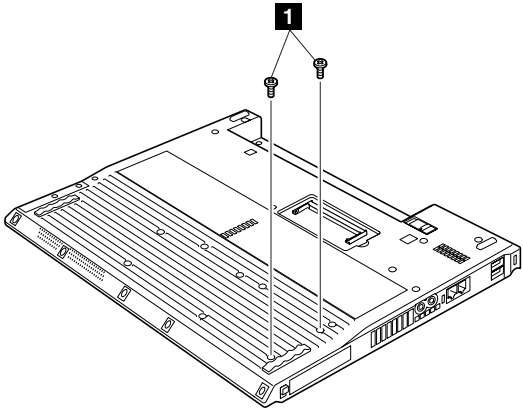
Before remove the IEEE 1394 cable, remove bracket structure 5 .

(continued)

Remove the connector **6**. And strip the tape securing the IEEE 1394 cable to the PC Card slot and remove the IEEE 1394 cable **7**.

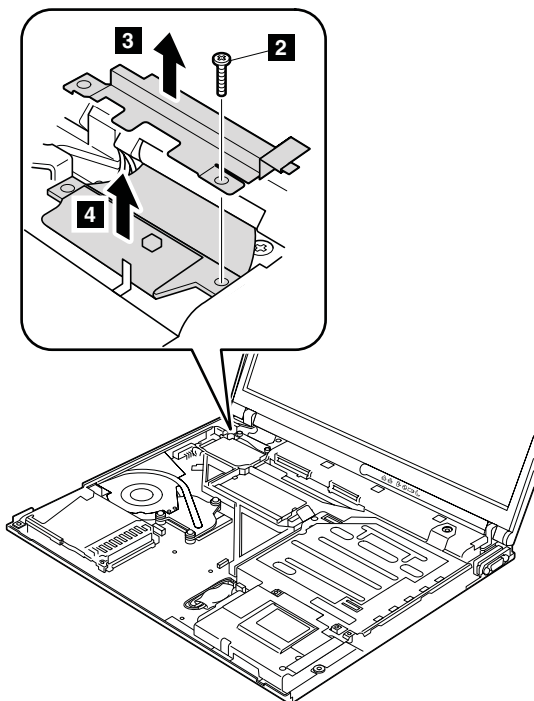
When installing: Make sure that the connector **6** is firmly attached to the system board.

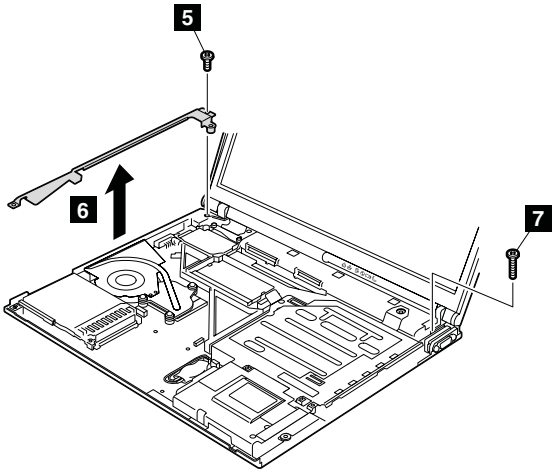
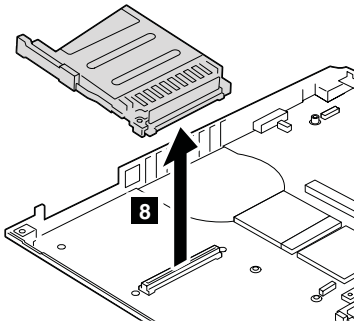
1180 PC Card slot assembly

For access, remove these FRUs in order:

- "1010 Battery pack" on page 76
- "1030 Hard disk drive" on page 79
- "1050 Keyboard" on page 82
- "1100 Keyboard bezel" on page 92
- "1160 Speaker assembly" on page 106
- "1170 IEEE 1394 (for R52 series)" on page 108

Step	Screw (quantity)	Color	Torque
1	M2 × 4 mm, flat-head, nylon-coated (2)	Black	0.245 Nm (2.5 kgfcm)

(continued)

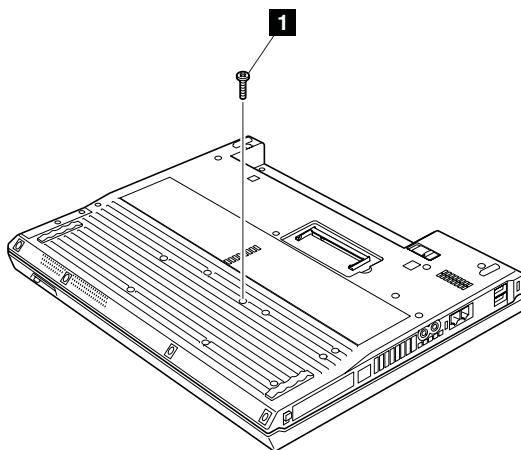
Note: Step 2 to step 7 are only for R50e series.

Step	Screw (quantity)	Color	Torque
2	M2 × 12 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

(continued)

Step	Screw (quantity)	Color	Torque
5	M2 × 6 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)
7	M2 × 6 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

When installing: Make sure that the connector 8 is firmly attached to the system board. Then, secure the screws from the underside of the computer.

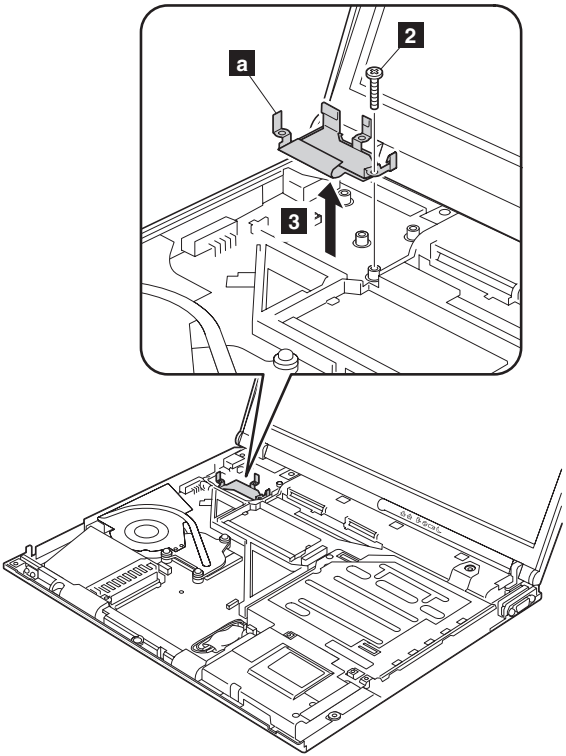
1190 Ultrabay Enhanced shield kit

For access, remove these FRUs in order:

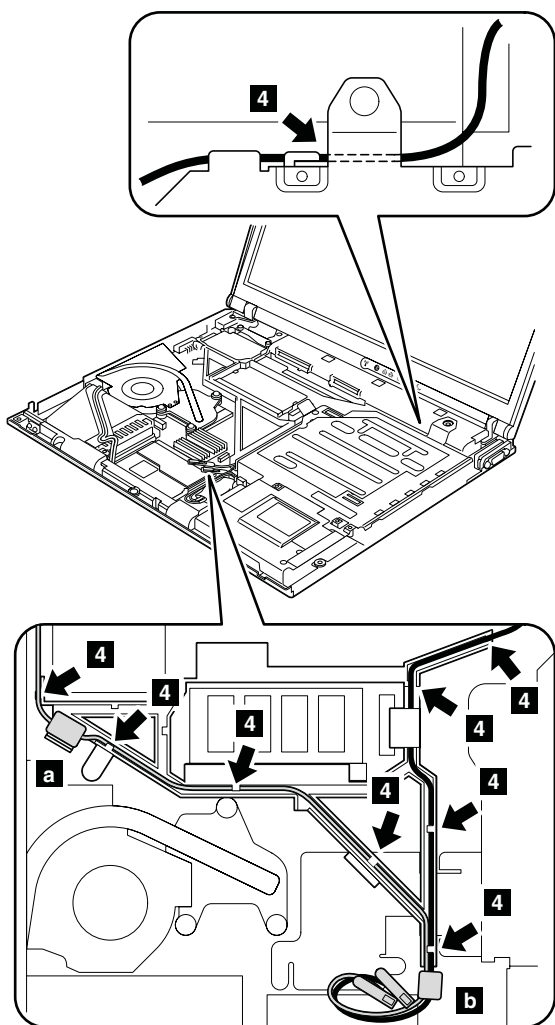
- "1010 Battery pack" on page 76
- "1020 Ultrabay Enhanced device (for R52 series)" on page 77
- "1030 Hard disk drive" on page 79
- "1050 Keyboard" on page 82
- "1060 Ultrabay device (for R50e series)" on page 86
- "1080 Modem daughter card (MDC-2)" on page 88
- "1090 Bluetooth/Modem daughter card (BMDC-3) (for R52 series)" on page 90
- "1100 Keyboard bezel" on page 92
- "1160 Speaker assembly" on page 106
- "1170 IEEE 1394 (for R52 series)" on page 108

Note: Step **1** is only for the models with 15.0-in. LCD. For the other models, skip this step.

Step	Screw (quantity)	Color	Torque
1	M2 × 12 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

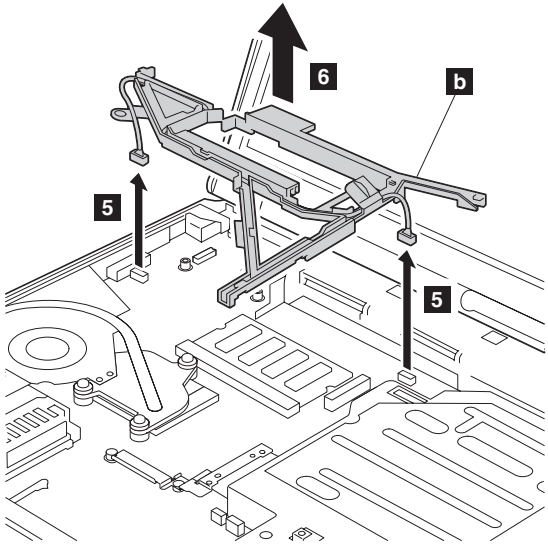
(continued)

Remove EMI spring for the CDC **a** before removing the Ultrabay Enhanced shield kit.

Step	Screw (quantity)	Color	Torque
2	M2 × 12 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

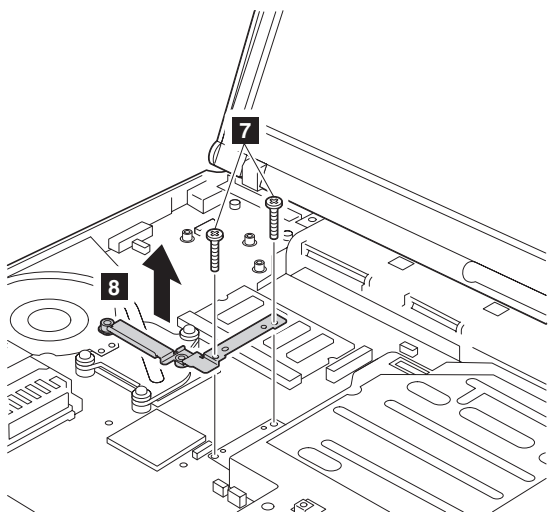
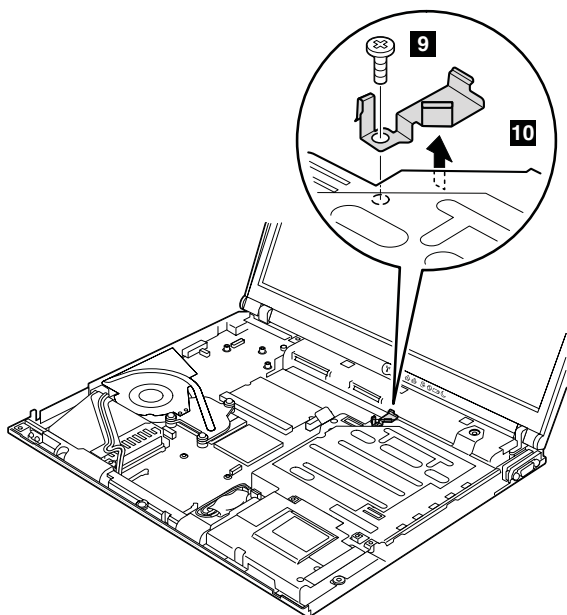
(continued)

For wireless models, release the antenna cables from the cable guide **4**. For the other models, skip this step.

When installing: Make sure that the antenna cables and the two ferrite cores **a** and **b** (with sponge) are correctly routed and securely in place.

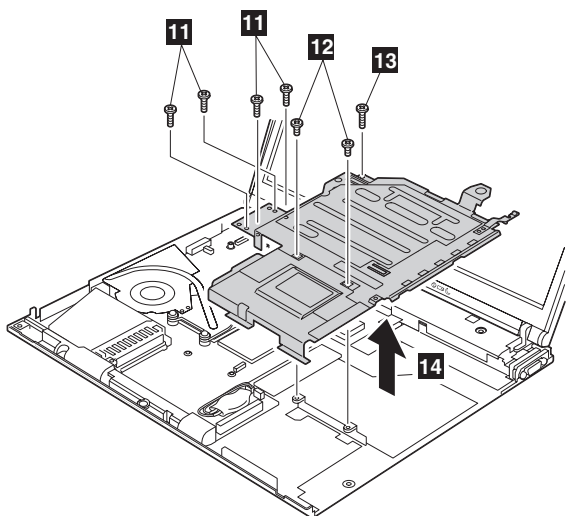
(continued)

Remove the cable guide **b**.

When installing: Make sure that the connectors **5** are firmly attached.

(continued)

Note: Shape of the bracket might be different from the models.

Step	Screw (quantity)	Color	Torque
7	M2 × 12 mm, bind-head, nylon-coated (2)	Black	0.245 Nm (2.5 kgfcm)

(continued)

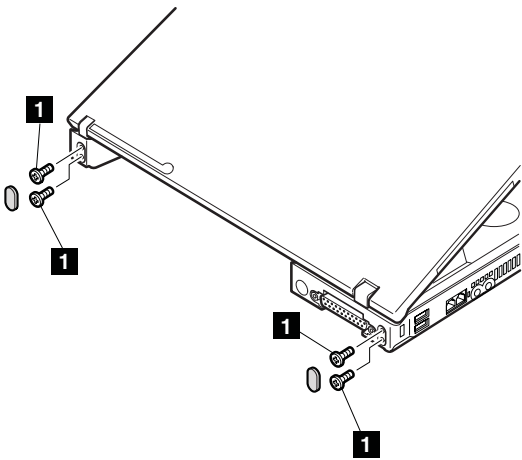
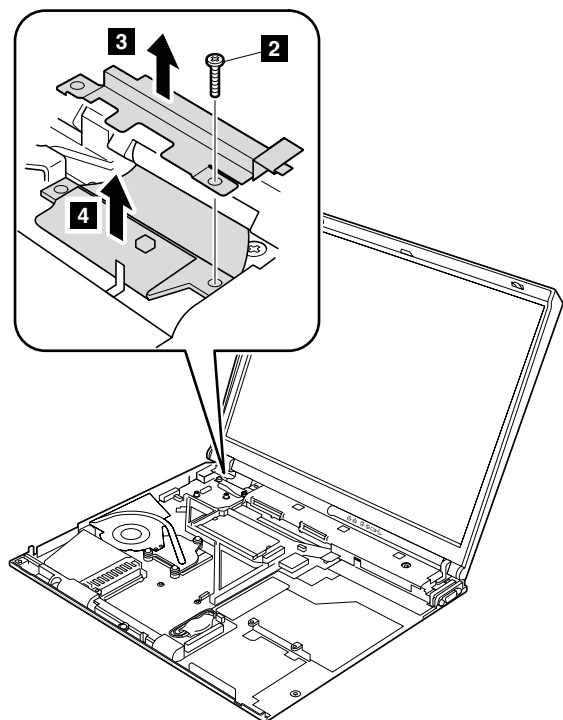
Step	Screw (quantity)	Color	Torque
9	M2 × 12 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

(continued)

Screws **11** are only for the models with 15.0-in. LCD. For the other models, skip the step.

Step	Screw (quantity)	Color	Torque
11	M2 × 10 mm, flat-head, nylon-coated (4)	Black	0.245 Nm (2.5 kgfcm)
12	M2 × 3 mm, small-head, nylon-coated (2)	Black	0.245 Nm (2.5 kgfcm)
13	M2 × 6 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

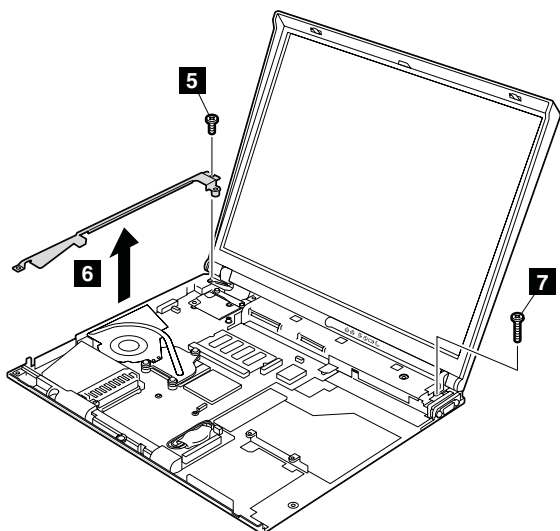
1200 LCD assembly

For access, remove these FRUs in order:

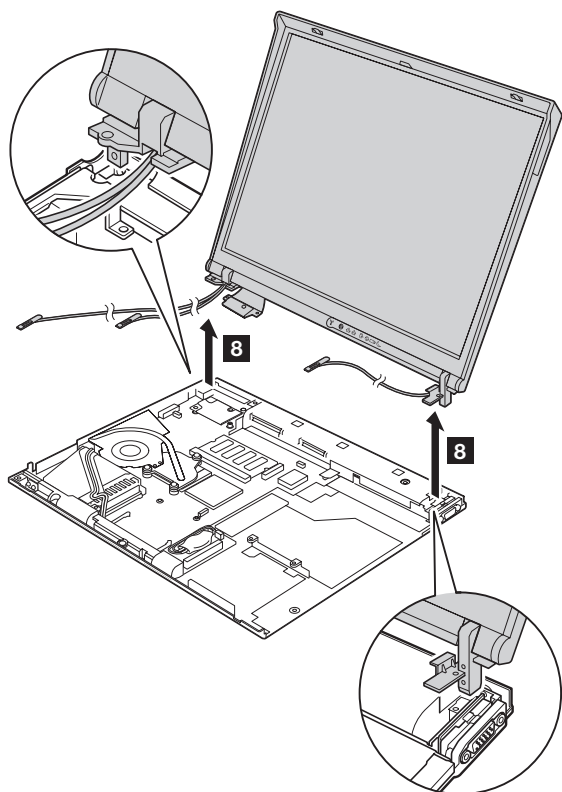
- “1010 Battery pack” on page 76
- “1020 Ultrabay Enhanced device (for R52 series)” on page 77
- “1050 Keyboard” on page 82
- “1060 Ultrabay device (for R50e series)” on page 86
- “1080 Modem daughter card (MDC-2)” on page 88
- “1090 Bluetooth/Modem daughter card (BMDC-3) (for R52 series)” on page 90
- “1100 Keyboard bezel” on page 92
- “1120 Mini PCI adapter” on page 99
- “1190 Ultrabay Enhanced shield kit” on page 114

Step	Screw (quantity)	Color	Torque
1	M2.5 × 4.8 mm, bind-head, nylon-coated (4)	Black	0.392 Nm (4 kgfcm)

(continued)

Step	Screw (quantity)	Color	Torque
2	M2 × 12 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

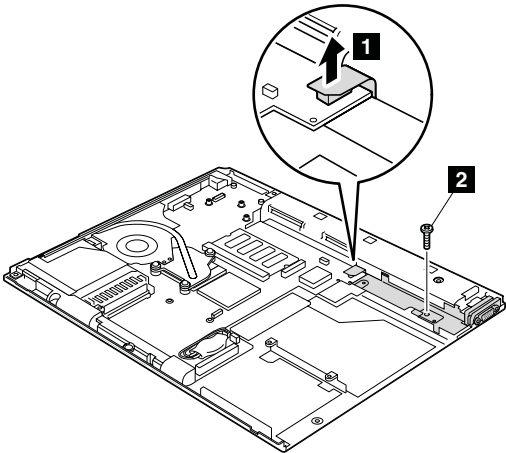
When installing: Make sure that the connector 4 and the LCD cable retainer 3 are firmly attached, and then secure them with the screw.

(continued)

Step	Screw (quantity)	Color	Torque
5	M2 × 6 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)
7	M2 × 6 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

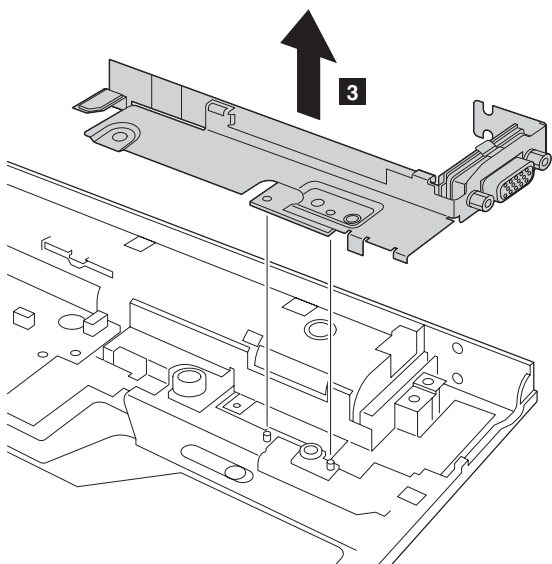
(continued)

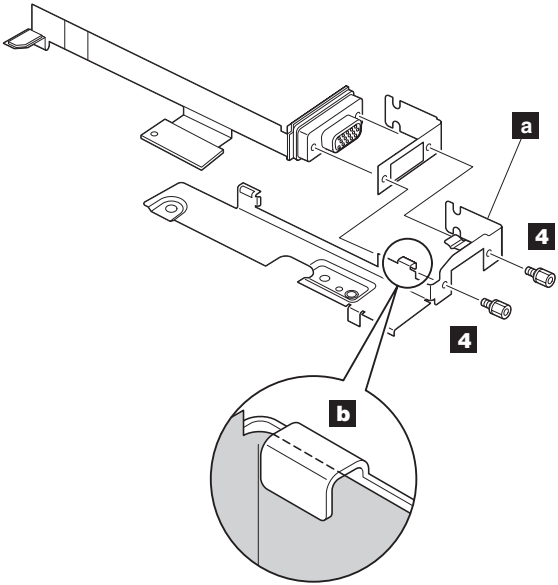
Note: Some models may not have the wireless LAN antenna cables.

1210 VGA and Ultrabay Enhanced device eject button cable

For access, remove these FRUs in order:

- "1010 Battery pack" on page 76
- "1020 Ultrabay Enhanced device (for R52 series)" on page 77
- "1050 Keyboard" on page 82
- "1060 Ultrabay device (for R50e series)" on page 86
- "1080 Modem daughter card (MDC-2)" on page 88
- "1090 Bluetooth/Modem daughter card (BMDC-3) (for R52 series)" on page 90
- "1100 Keyboard bezel" on page 92
- "1120 Mini PCI adapter" on page 99
- "1190 Ultrabay Enhanced shield kit" on page 114
- "1200 LCD assembly" on page 121

Step	Screw (quantity)	Color	Torque
2	M2 × 4 mm, flat-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

When installing: Make sure that the connector **1** is firmly attached.

(continued)

(continued)

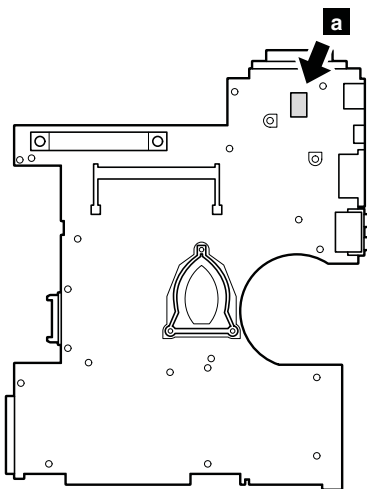
VGA and Ultrabay Enhanced device eject button cable is attached to S-Video gasket **a**. When re-installing the cable, attach the cable as shown in figure **b**.

Step	Screw (quantity)	Color	Torque
4	Hex stud (2)	Silver	0.392 Nm (4 kgfcm)

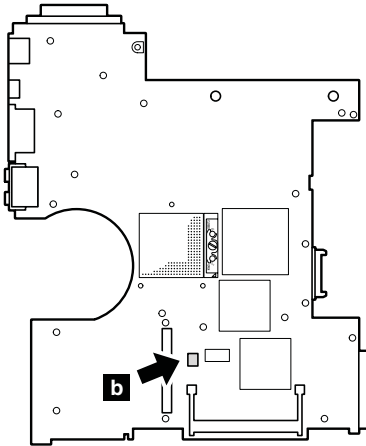
1220 System board, interposer card, and base cover

For access, remove these FRUs, in order:

- "1010 Battery pack" on page 76
- "1020 Ultrabay Enhanced device (for R52 series)" on page 77
- "1030 Hard disk drive" on page 79
- "1040 DIMM (optional)" on page 81
- "1050 Keyboard" on page 82
- "1060 Ultrabay device (for R50e series)" on page 86
- "1070 DIMM (standard)" on page 87
- "1080 Modem daughter card (MDC-2)" on page 88
- "1090 Bluetooth/Modem daughter card (BMDC-3) (for R52 series)" on page 90
- "1100 Keyboard bezel" on page 92
- "1120 Mini PCI adapter" on page 99
- "1130 Fan assembly" on page 103
- "1140 CPU" on page 104
- "1150 Backup battery" on page 105
- "1160 Speaker assembly" on page 106
- "1180 PC Card slot assembly" on page 111
- "1190 Ultrabay Enhanced shield kit" on page 114
- "1200 LCD assembly" on page 121
- "1210 VGA and Ultrabay Enhanced device eject button cable" on page 125

Important notice for handling the system board in R52 series:

Security chip **a** is soldered on the underside of the system board in some models as in this figure.

(continued)

An accelerometer chip for the HDD Active Protection System **b** is also soldered on the topside of the system board.

(continued)

Important

When handling the system board, bear the following in mind.

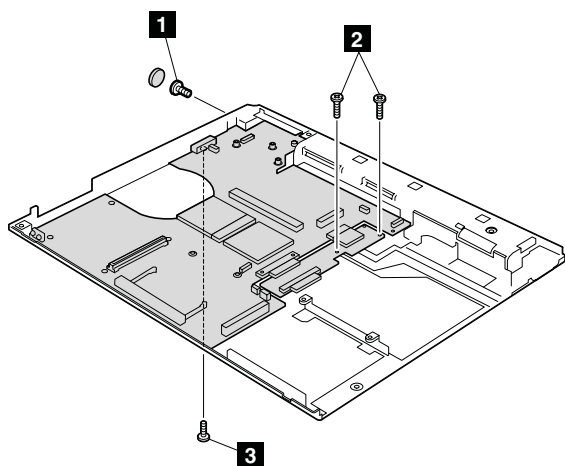
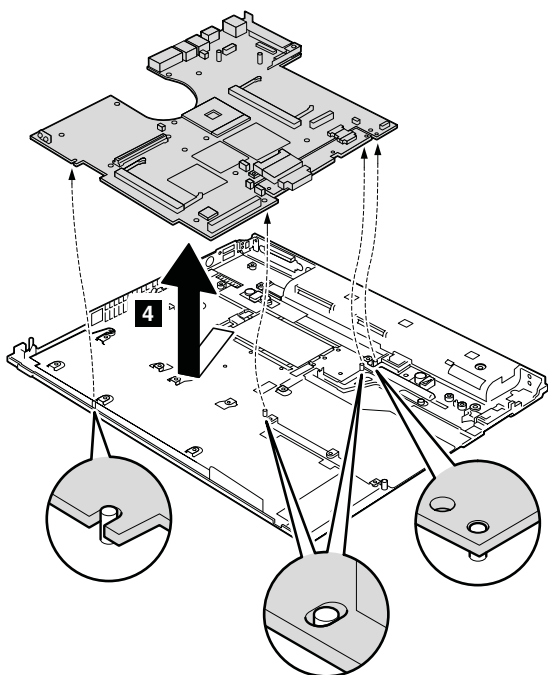
- The system board of the ThinkPad R50e and R52 series has an accelerometer, which can be broken by applying several thousands of G-forces.

  Note: Dropping a system board from a height of as little as 6 inches so that it falls flat on a hard bench can subject the accelerometer to as much as 6,000 G's of shock.
- Be careful not to drop the system board on a bench top that has a hard surface, such as metal, wood, or composite.
- If a system board is dropped, you must test it, using PC-Doctor for DOS, to make sure that the HDD Active Protection still functions (see below).

  Note: If the test shows that HDD Active Protection is not functioning, be sure to document the drop in any reject report, and replace the system board.
- Avoid rough handling of any kind.
- At every point in the process, be sure not to drop or stack the system board.
- If you put a system board down, be sure to put it only on a padded surface such as an ESD mat or conductive corrugated material.

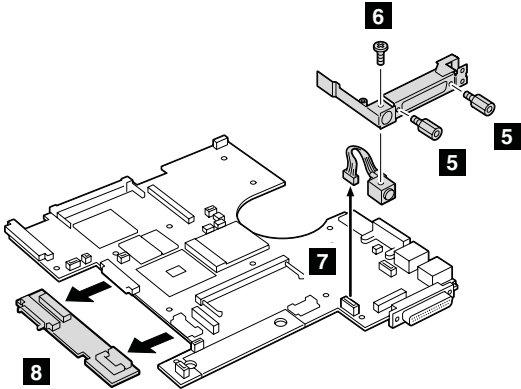
After replacing the system board, run PC-Doctor for DOS to make sure that HDD Active Protection still functions. The procedure is as follows:

1. Place the computer on a horizontal surface.
2. Run **Diagnostics** --> **ThinkPad Devices** --> **HDD Active Protection Test**.

   Attention: Do not apply physical shock to the computer while the test is running.

Step	Screw (quantity)	Color	Torque
1	M2.5 × 4.8 mm, flat-head, nylon-coated (1)	Silver	0.392 Nm (4 kgfcm)
2	M2 × 4 mm, flat-head, nylon-coated (2)	Black	0.245 Nm (2.5 kgfcm)
3	M2 × 12 mm, bind-head, nylon-coated (1)	Black	0.245 Nm (2.5 kgfcm)

(continued)

When installing: Make sure that the all the guide holes of the system board are firmly attached to the base cover.

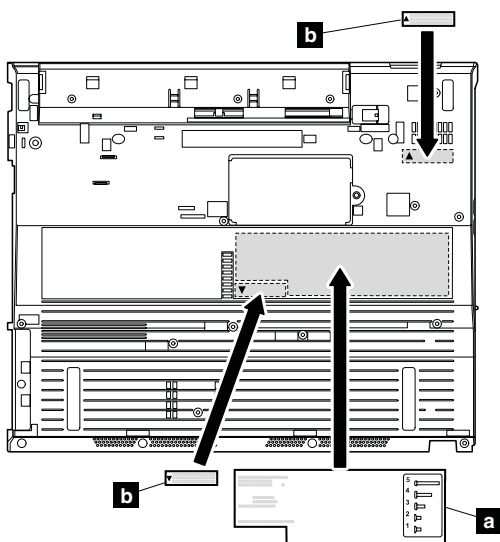
(continued)

Remove the connector bracket from the system board by removing screws **5** and **6**. Then remove the ac connector from the system board by disconnecting the cables **7**. Step **8** is only for the models with 15.0-in. LCD models. Other models do not have the interposer card.

Step	Screw (quantity)	Color	Torque
5	Hex stud (2)	Silver	0.392 Nm (4 kgfcm)
6	M2.5 × 3 mm, flat-head, nylon-coated (1)	Black	0.392 Nm (4 kgfcm)

Note for sticking a label kit on the base cover

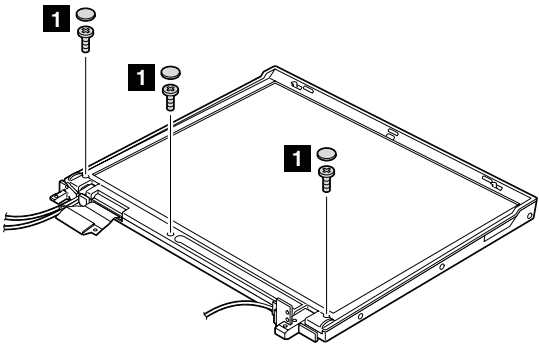
New base cover FRU is shipped with several kinds of label kit. When you replace the base cover, you need to stick a homologation label **a** which has the same part no. with the label on the old base cover (defective FRU) on the new base cover.

In some models, you also need to stick one or two FCC labels **b**. Check the old base cover and if there is one or two FCC leabels on it, find the same one from the label kit and stick it on the new base cover.

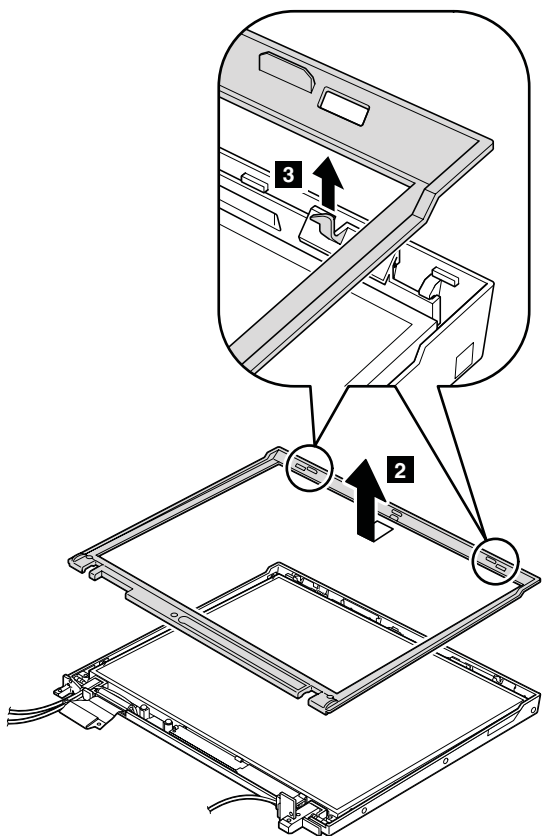
Stick the labels on the new base cover as shown in this figure.

2010 LCD front bezel

For access, remove these FRUs in order:

- “1010 Battery pack” on page 76
- “1020 Ultrabay Enhanced device (for R52 series)” on page 77
- “1030 Hard disk drive” on page 79
- “1050 Keyboard” on page 82
- “1060 Ultrabay device (for R50e series)” on page 86
- “1080 Modem daughter card (MDC-2)” on page 88
- “1090 Bluetooth/Modem daughter card (BMDC-3) (for R52 series)” on page 90
- “1100 Keyboard bezel” on page 92
- “1120 Mini PCI adapter” on page 99
- “1190 Ultrabay Enhanced shield kit” on page 114
- “1200 LCD assembly” on page 121

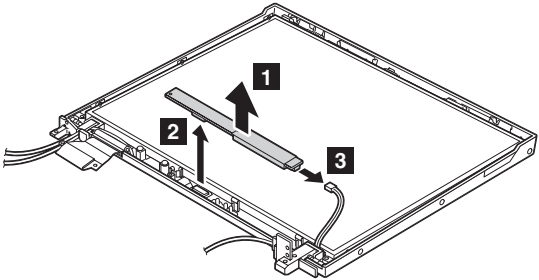
Note: Some models may not have the wireless LAN antenna cables.

Step	Screw cap	Screw (quantity)	Color	Torque
1	◯	M2.5 × 4.8 mm, bind-head, nylon-coated (3)	Black	0.392 Nm (4 kgfcm)

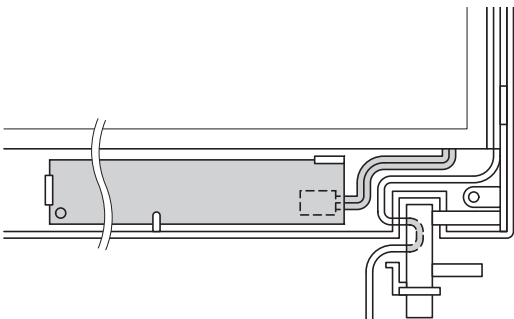
(continued)

3
2

2020 Inverter card

For access, remove these FRUs in order:

- "1010 Battery pack" on page 76
- "1020 Ultrabay Enhanced device (for R52 series)" on page 77
- "1030 Hard disk drive" on page 79
- "1050 Keyboard" on page 82
- "1060 Ultrabay device (for R50e series)" on page 86
- "1080 Modem daughter card (MDC-2)" on page 88
- "1090 Bluetooth/Modem daughter card (BMDC-3) (for R52 series)" on page 90
- "1100 Keyboard bezel" on page 92
- "1120 Mini PCI adapter" on page 99
- "1190 Ultrabay Enhanced shield kit" on page 114
- "1200 LCD assembly" on page 121
- "2010 LCD front bezel" on page 135

Note: Some models may not have the wireless LAN antenna cables.

When installing: Make sure that connectors **2** and **3** are firmly attached.

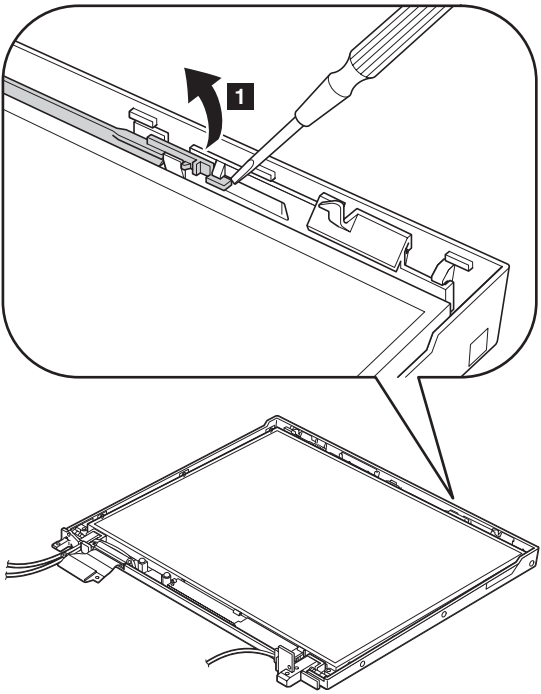
Cable routing: When replacing the inverter card, route the connector cable as in this figure:

2030 LCD panel, LCD cable assembly, wireless LAN antenna assembly, hinges, and LCD cover

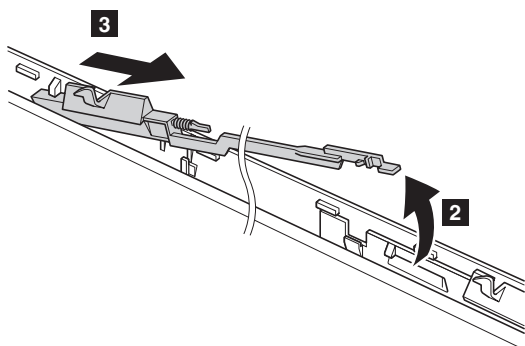
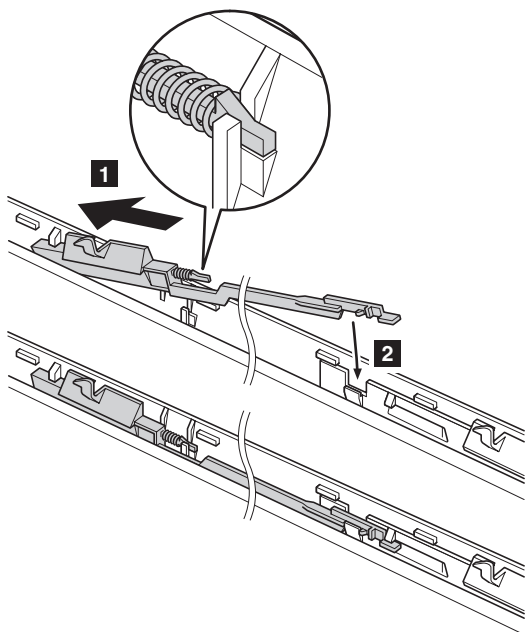
For access, remove these FRUs in order:

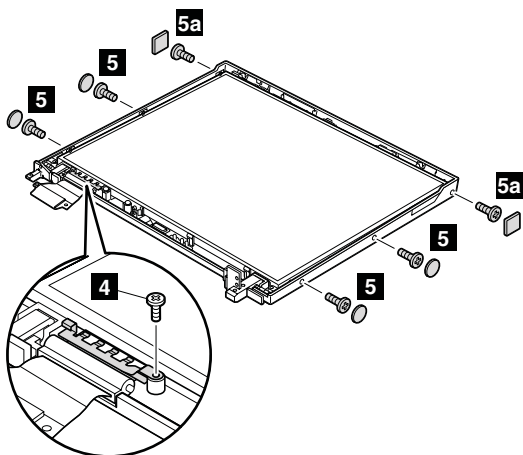
- “1010 Battery pack” on page 76
- “1020 Ultrabay Enhanced device (for R52 series)” on page 77
- “1030 Hard disk drive” on page 79
- “1050 Keyboard” on page 82
- “1060 Ultrabay device (for R50e series)” on page 86
- “1080 Modem daughter card (MDC-2)” on page 88
- “1090 Bluetooth/Modem daughter card (BMDC-3) (for R52 series)” on page 90
- “1100 Keyboard bezel” on page 92
- “1120 Mini PCI adapter” on page 99
- “1190 Ultrabay Enhanced shield kit” on page 114
- “1200 LCD assembly” on page 121
- “2010 LCD front bezel” on page 135
- “2020 Inverter card” on page 137

Note: Some models may not have the wireless LAN antenna cables.

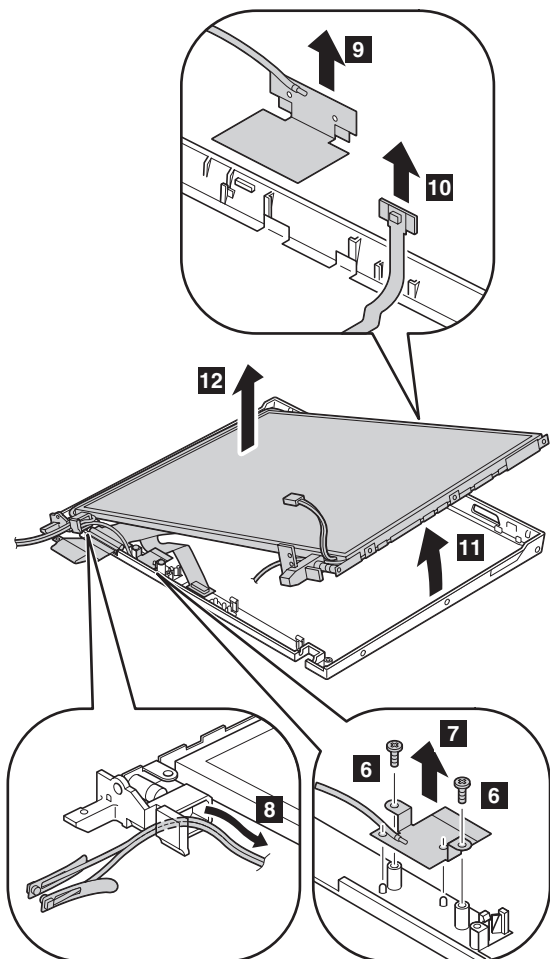
Before removing the LCD panel, remove the left latch first.

In step **1**, unlatch the latch bar as in this figure.

(continued)

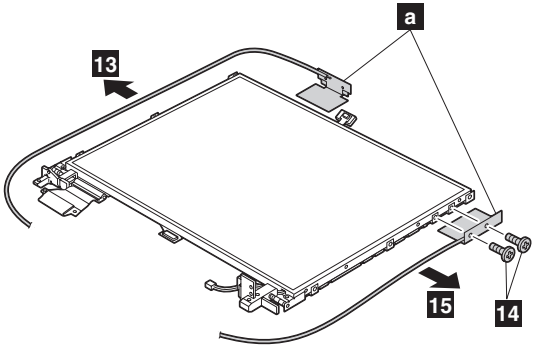
Lift the latch bar in the direction of the arrow **2**, and then remove the left latch in the direction of the arrow **3**.

When installing: Attach the left latch to the LCD cover as in this figure.

(continued)

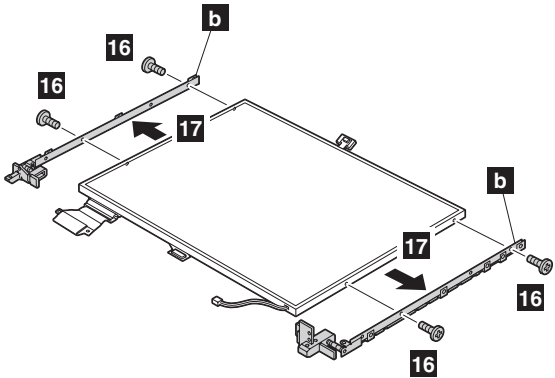
Note: Some models may not have screw **4**.

Step	Screw cap	Screw (quantity)	Color	Torque
4	—	M2.5 × 4.8 mm, bind-head, nylon-coated (1)	Black	0.392 Nm (4 kgfcm)
5	○	M2 × 4 mm, bind-head, nylon-coated (4)	Black	0.245 Nm (2.5 kgfcm)
5a	□	M2 × 4 mm, bind-head, nylon-coated (2)	Black	0.245 Nm (2.5 kgfcm)

(continued)

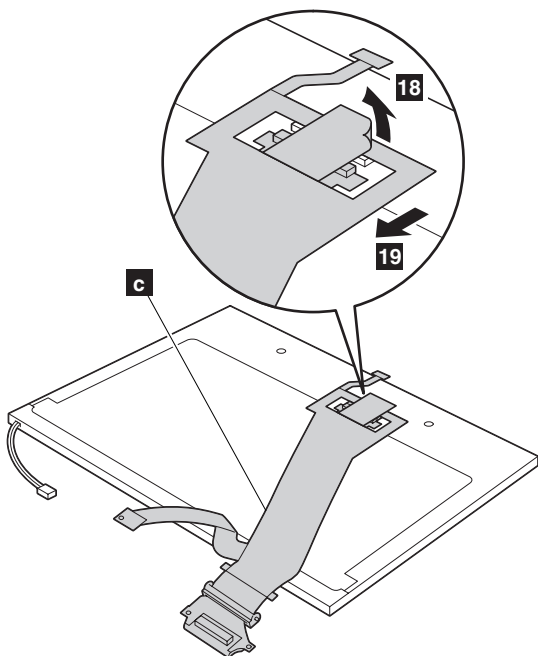
Note: Steps **6** and **7** are only for the models with 15.0-in. SXGA+ LCD. For the other models, skip steps **6** and **7**.

Step	Screw (quantity)	Color	Torque
6	M2 × 4 mm, bind-head, nylon-coated (2)	Black	0.245 Nm (2.5 kgfcm)

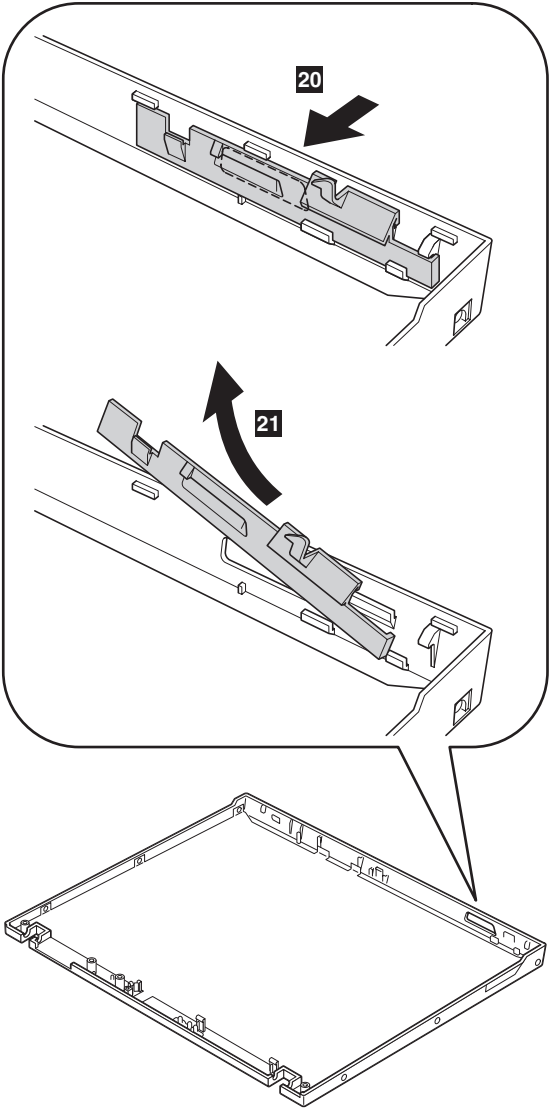
(continued)

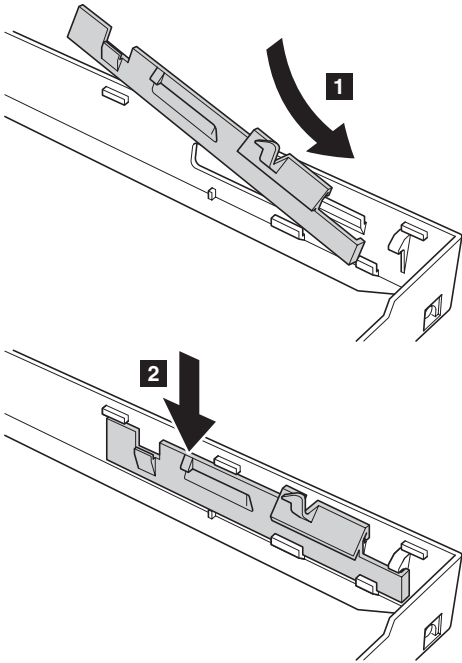
Remove the antenna assembly (**a**).

Step	Screw (quantity)	Color	Torque
14	M2 × 3 mm, small-head, nylon-coated (2)	Silver	0.245 Nm (2.5 kgfcm)

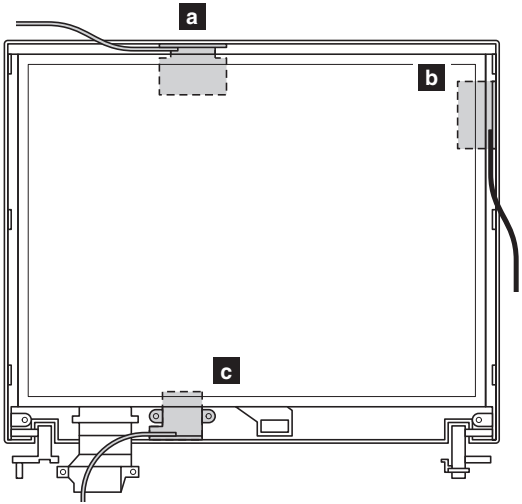
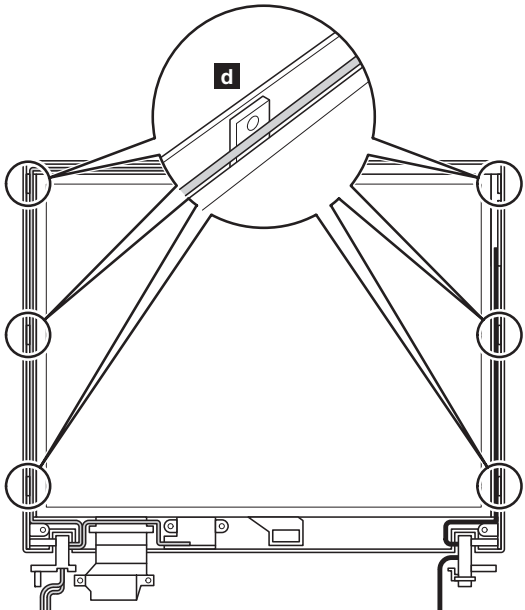
Remove the hinges (**b**) from the LCD assembly.

Step	Screw (quantity)	Color	Torque
16	M2 × 3 mm, small-head, nylon-coated (4)	Silver	0.245 Nm (2.5 kgfcm)

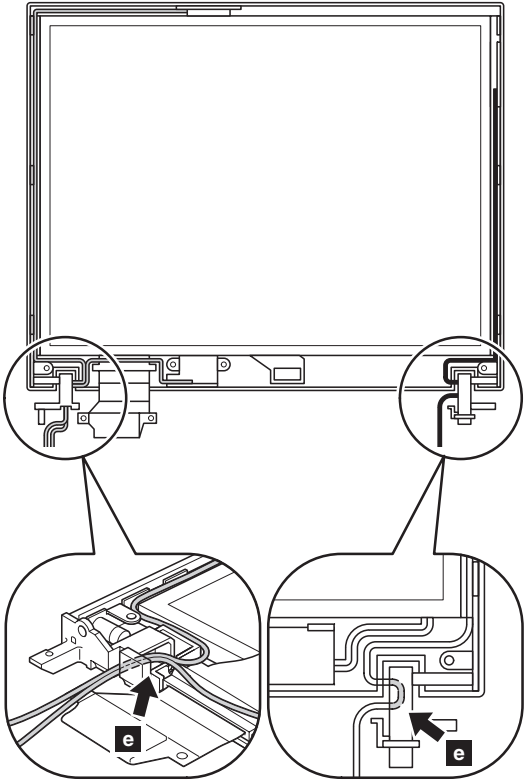
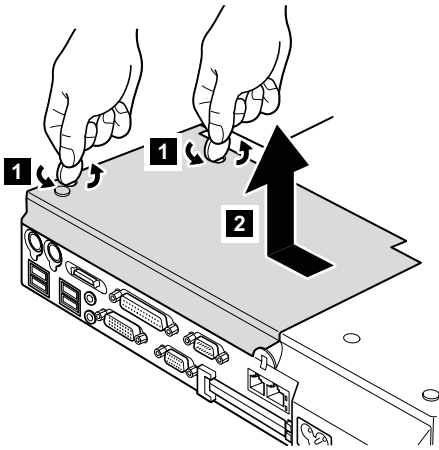
(continued)

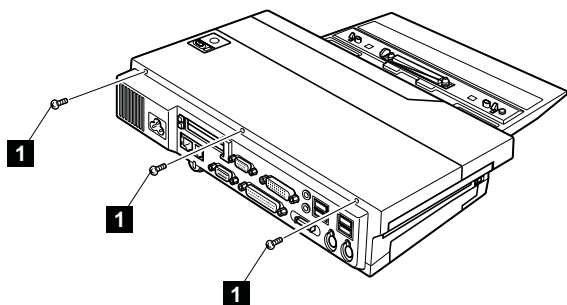
Turn over the LCD panel and strip off the tape **18** securing the FPC (**c**). Then detach the connector **19** in the direction of the arrow.

(continued)

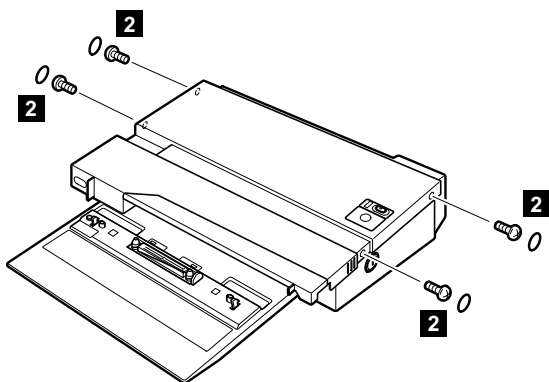
Remove the right latch from the LCD cover.

When installing: Attach the right latch to the LCD cover as in this figure.

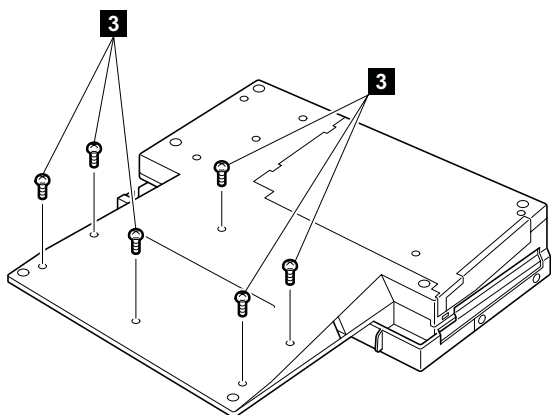
1
2

Routing the cables of the wireless LAN antenna (only for the wireless models):

1. Place the wireless LAN antennas **a** and **b**, and the Bluetooth wireless antenna **c** under the LCD panel.

2. Route the antenna cables as in the following drawings:

(continued)

3. Route the cables as in the figure below.

3010 ThinkPad Dock II PCI cover

(Bottom view)

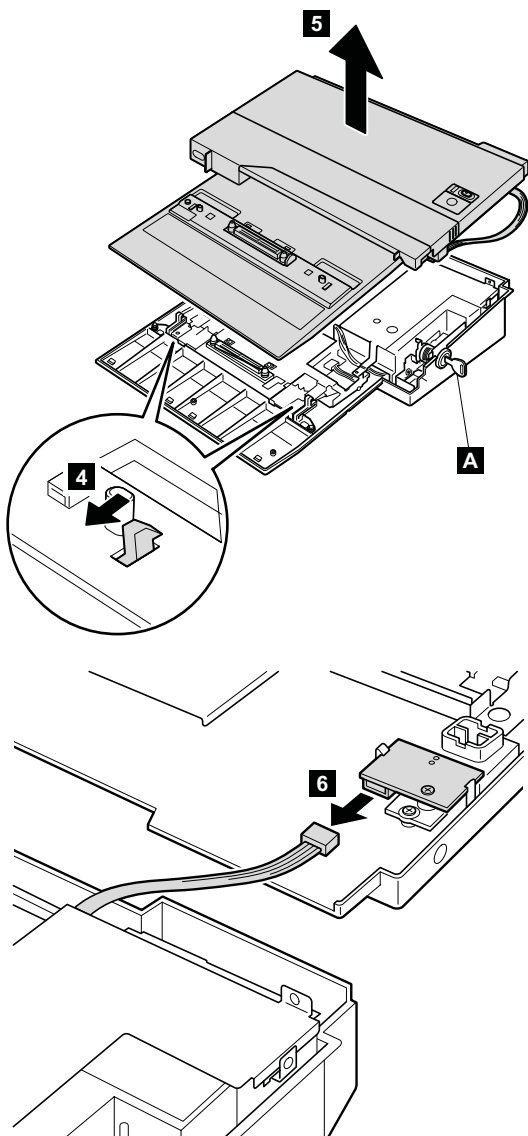
3020 ThinkPad Dock II top cover

(Rear view)

Step	Screw (quantity)	Torque
1	M2.5 × 4.8 mm (3)	0.392 Nm (4 kgfcm)

Step	Screw (quantity)	Torque
2	M2.5 × 4.8 mm (4)	0.392 Nm (4 kgfcm)

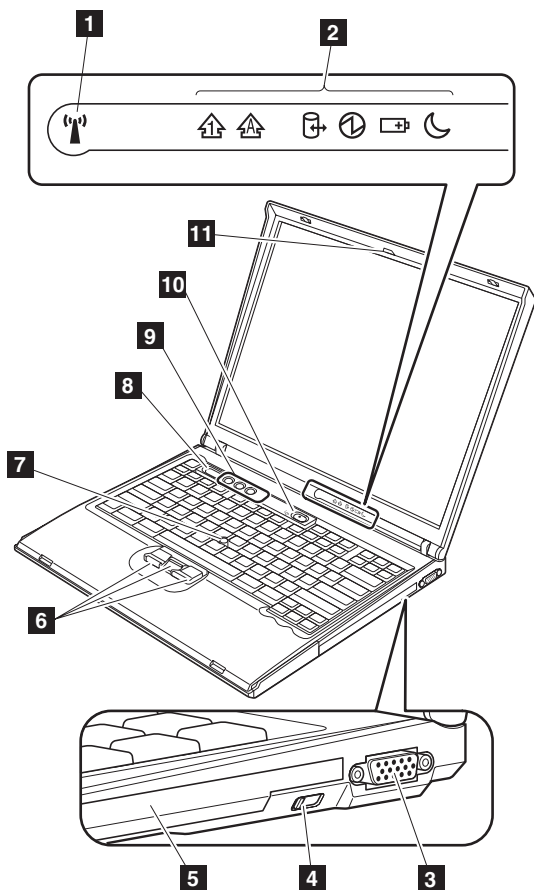
(continued)

(Bottom view)

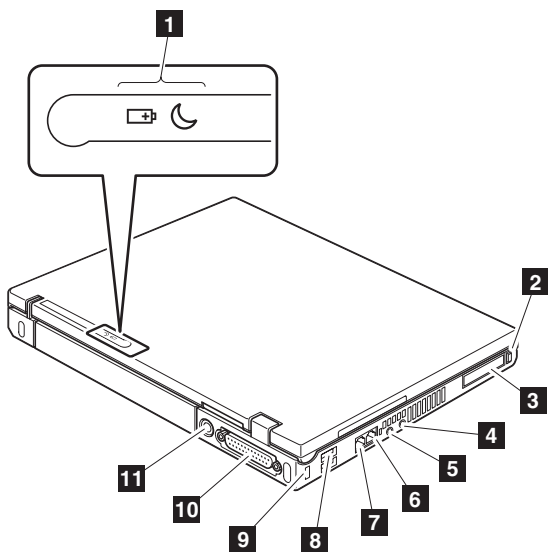
Step	Screw (quantity)	Torque
3	M2.5 × 4.8 mm (6)	0.392 Nm (4 kgfcm)

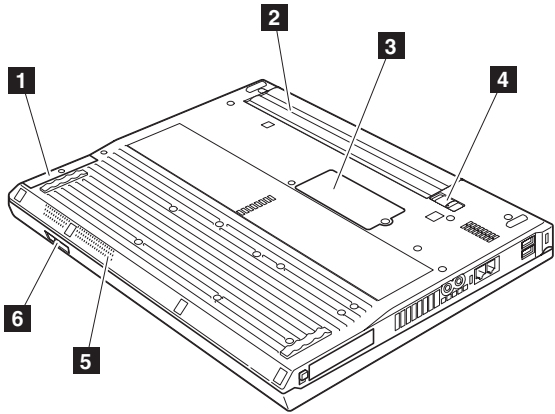
(continued)

Make sure that the system lock key **A** is set to the Unlock position. Release the front latches in step **4**, and then remove the top cover **5**. Then detach the connector cable **6** as in the figure.

Locations

Front view (for R50e)

1	Wireless status indicator (for some models)
2	System and power status indicators
3	External monitor connector
4	Ultrabay Enhanced latch
5	Ultrabay Enhanced
6	TrackPoint buttons
7	TrackPoint pointing stick
8	Access IBM button
9	Volume control buttons
10	Power switch
11	ThinkLight

Rear view (for R50e)

1	Power status indicators
2	PC Card eject button
3	PC Card slot
4	Microphone jack
5	Stereo headphone jack
6	RJ-45 (Ethernet) connector
7	RJ-11 (modem) connector
8	Universal serial bus (USB) connectors
9	Security keyhole
10	Parallel connector
11	AC power connector

Bottom view (for R50e)

1 Hard disk drive
2 Battery pack
3 Optional DIMM slot
4 Battery pack latch
5 Built-in monaural speaker
6 LCD latch

Front view (for R52)

1	Wireless status indicator
2	*Bluetooth* wireless status indicator (for some models)
3	System and power status indicators
4	External monitor connector
5	Ultrabay Enhanced status indicator
6	Ultrabay Enhanced latch
7	Ultrabay Enhanced device eject lever
8	Ultrabay Enhanced
9	TrackPoint pointing stick
10	TrackPoint buttons
11	Touch pad buttons
12	Touch pad
13	UltraNav
14	Access IBM button
15	Volume control buttons
16	Power switch
17	ThinkLight

1
2
3
17
16
15
14
12
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13
10
9
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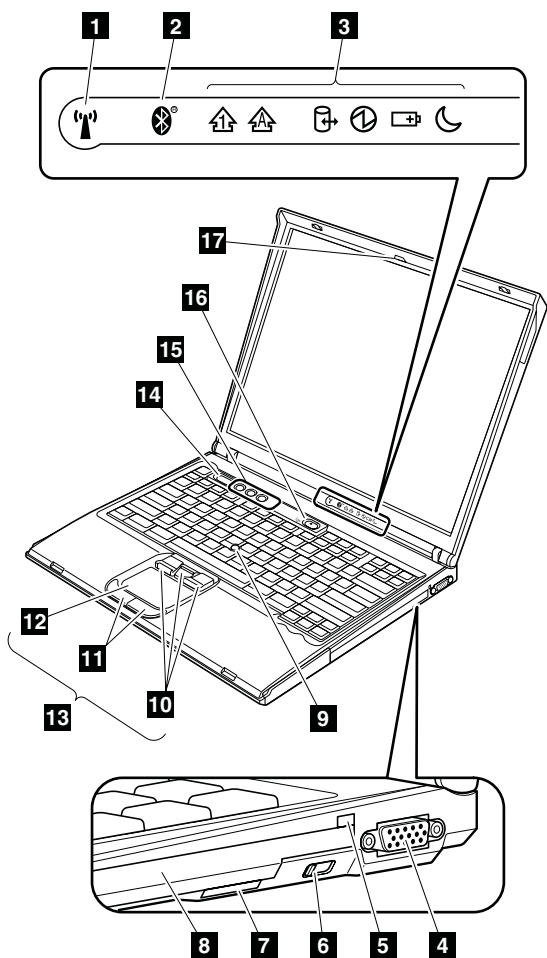
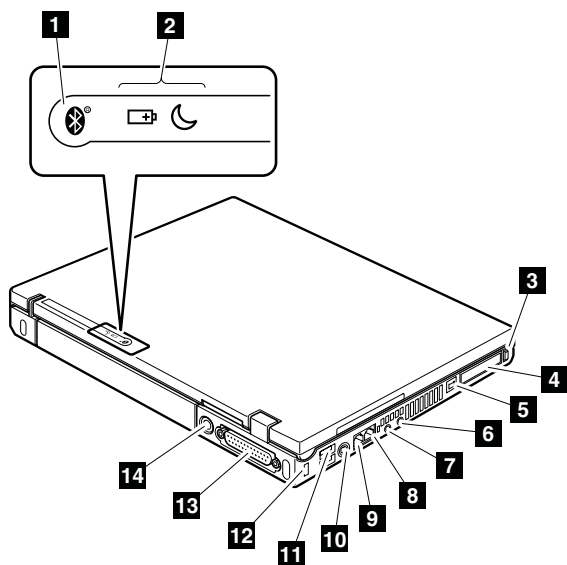
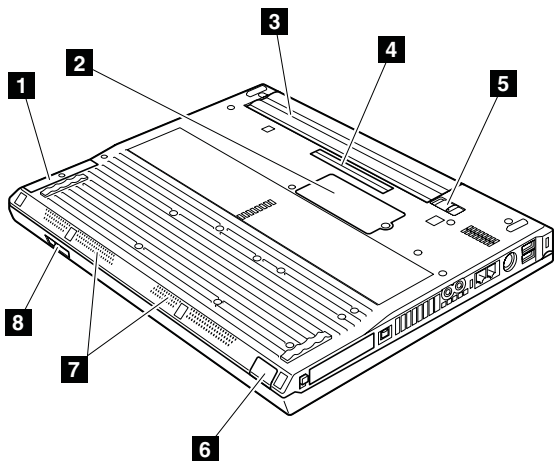
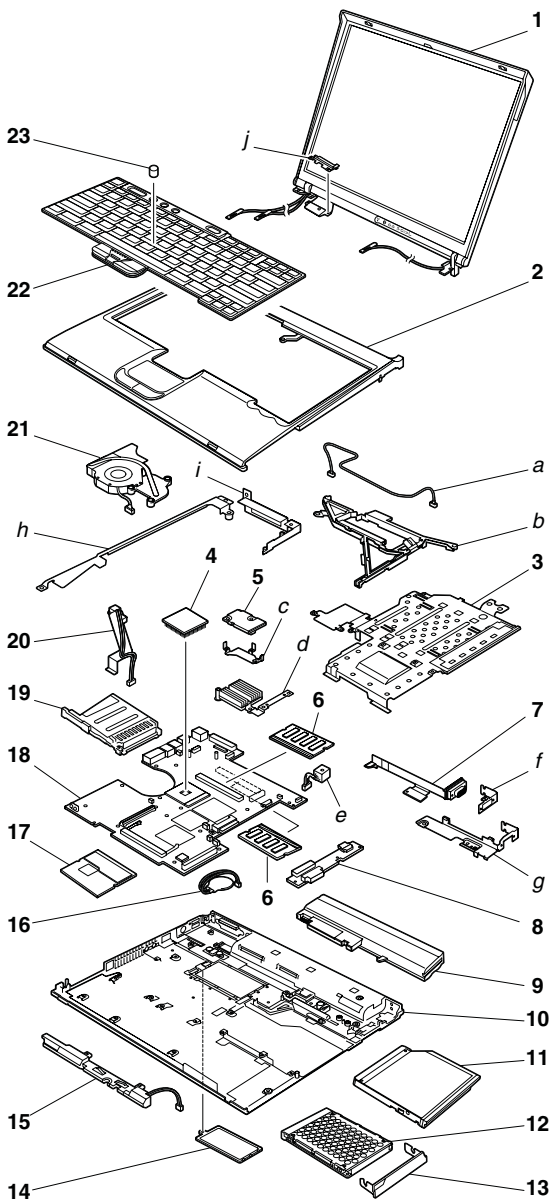
7
6
5
4

Rear view (for R52)

1	*Bluetooth* wireless status indicator (for some models)
2	Power status indicators
3	PC Card eject button or PC Card/ExpressCard eject buttons (for some models)
4	PC Card slot or PC Card/ExpressCard slots (for some models)
5	IEEE 1394 connector (for some models)
6	Microphone jack
7	Stereo headphone jack
8	RJ-45 (Ethernet) connector
9	RJ-11 (modem) connector
10	TV-out connector
11	Universal serial bus (USB) connectors
12	Security keyhole
13	Parallel connector
14	AC power connector

Bottom view (for R52)

- **1** Hard disk drive
- **2** Optional DIMM slot
- **3** Battery pack
- **4** Docking connector
- **5** Battery pack latch
- **6** Infrared port
- **7** Built-in stereo speakers
- **8** LCD latch

Parts list

Overall

- Each FRU is available for all types or models, unless specific types or models are specified.
- A CRU (customer replaceable unit) is identified by a single asterisk (*) or two asterisks (**) in the CRU ID column. An N in the CRU ID column means the part is not a CRU. A single asterisk (*) means the part is a Tier 1 CRU; two asterisks (**) means the part is a Tier 2 CRU.
- FRUs marked with **OP** are available as options.
- FRUs marked with **R** are RoHS compliant.

No.	FRU	P/N	CRU ID
a- j	See “Miscellaneous parts” on page 253.		
1	LCD unit (see “LCD FRUs” on page 220).		N
2	Keyboard bezel assembly, 14.1 (for R50e, R51e) • 1834-Kxx, Lxx, Q4x, Q5x, Q8x, Q9x, QBx, QCx • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 5Lx • 1844-5Fx, 5Jx	13N5581	N
	Keyboard bezel assembly, 15.0 (for R50e, R51e) • 1834-Mxx, Q2x, Q3x, Q6x, Q7x, QAx, Rxx, Sxx • 1842-Mxx, Qxx • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx • 1844-5Gx, 5Hx • 1845-5Kx	13N5584	N

(continued)

No.	FRU	P/N	CRU ID
2	Keyboard bezel with touchpad assembly, 14.1 WW (for R52) • 1846-CTO, 2xx, 5xx • 1847-CTO, 2xx • 1848-CTO, 2xx • 1849-CTO, 5xx • 1850-CTO, 2xx • 1870-CTO, 2xx • 1846-84x, 85x, 86x. 87x, 88x, 89x • 1847-82x, 8Ex • 1848-82x • 1858-CTO, 2xx, 3xx • 1859-CTO, 2xx, 3xx • 1860-CTO, 2xx, 3xx • 1861-CTO, 2xx, 3xx • 1862-CTO, 2xx • 1863-CTO, 2xx • 1858-92x, 93x, 95x, 97x, 98x, 99x, 9Bx, 9Dx, 9Ex, CCx • 1859-B6x • 1860-BPx, BRx, BSx, C6x, C7x, C8x • 1861-C6x, C7x, C8x	91P8745	N
	Keyboard bezel with touchpad assembly, 14.1 FPR (for R52) • 1846-CTO, 8Ax, 8Bx • 1847-CTO, 83x, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx • 1848-CTO, 83x, 8Lx, 8Mx, 8Nx • 1849-CTO, 8Cx, 8Dx, 8Px, 8Qx, 8Rx, 8Sx, 8Tx • 1858-CTO, 94x, 96x, 9Ax, 9Fx, 9Gx • 1859-CTO, B7x, B8x, BBx, BCx, BDx, BEx • 1860-CTO, 9Fx, 9Gx, BQx, C9x • 1861-CTO, 9Gx, C9x	26R9700	N

(continued)

No.	FRU	P/N	CRU ID
2	Keyboard bezel with touchpad assembly, 15.0 WW (for R52) • 1846-CTO, 3xx, 4xx, 6xx • 1847-CTO, 3xx, 4xx • 1848-CTO, 3xx, 4xx • 1849-CTO, 4xx, 6xx • 1846-94x, 95x, 96x, 97x, 98x, 99x, A2x, A3x, • 1847-92x, 9Lx, AEx • 1848-92x • 1858-CTO, 4xx, 5xx, 6xx • 1859-CTO, 4xx, 5xx, 6xx • 1860-CTO, 4xx, 5xx, 6xx • 1861-CTO, 4xx, 5xx, 6xx • 1858-9Jx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, A2x, A3x, ABx, ADx, AGx, AHx, AJx, AKx, ALx, AMx • 1860-BUx, C2x, C3x, CAx • 1861-BUx, CAx	91P8749	N
	Keyboard bezel with touchpad assembly, 15.0 FPR (for R52) • 1846-CTO, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, 9Ax, 9Bx, 9Cx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx • 1847-CTO, 93x, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, AFx, AGx, AHx, AJx, • 1848-CTO, AKx, ALx, 93x, 9Ux, 9Vx • 1849-CTO • 1858-CTO, 9Hx, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ACx, AEx, AFx, ANx, APx,, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B2x, B3x, B4x, B5x • 1859-CTO, B9x, BAx, BFx, BGx, BHx, BJx, BKx, BLx, BMx • 1860-CTO, BTx, BVx, BWx, BXx, BYx, BZx, C4x, C5x, C9x, CBx • 1861-CTO, BZx, CBx	26R9701	N
3	Ultrabay Enhanced shield kit for 14.1-in. (for R50e, R51e) • 1834-Kxx, Lxx, Q4x, Q5x, Q8x, Q9x, QBx, QCx • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 5Lx • 1844-5Fx, 5Jx	13R2300	N

(continued)

No.	FRU	P/N	CRU ID
3	Ultrabay Enhanced shield kit for 15.0-in. (for R50e, R51e) • 1834-Mxx, Q2x, Q3x, Q6x, Q7x, QAx, Rxx, Sxx • 1842-Mxx, Qxx • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx • 1844-5Gx, 5Hx • 1845-5Kx	13N2302	N
	Ultrabay Enhanced shield kit for 14.1-in. (for R52) • 1846-CTO, 2xx, 5xx • 1847-CTO, 2xx • 1848-CTO, 2xx • 1849-CTO, 5xx • 1850-CTO, 2xx • 1870-CTO, 2xx • 1846-84x, 85x, 86x. 87x, 88x, 89x, 8Ax, 8Bx • 1847-82x, 83x, 8Ex, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx • 1848-82x, 83x, 8Lx, 8Mx, 8Nx • 1849-8Cx, 8Dx, 8Px, 8Qx, 8Rx, 8Sx, 8Tx • 1858-CTO, 2xx, 3xx • 1859-CTO, 2xx, 3xx • 1860-CTO, 2xx, 3xx • 1861-CTO, 2xx, 3xx • 1862-CTO, 2xx • 1863-CTO, 2xx	26R7834	N
	Ultrabay Enhanced shield kit for 14.1-in. FPR (for R52) • 1858-CTO, 92x, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, CCx • 1859-CTO, B6x, B7x, B8x, BBx, BCx, BDx, BEx • 1860-CTO, 9Fx, 9Gx, BPx, BQx, BRx, BSx, C6x, C7x, C8x, C9x • 1861-CTO, 9Gx, C6x, C7x, C8x, C9x	26R9702	N

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No.	FRU	P/N	CRU ID
3	Ultrabay Enhanced shield kit for 15.0-in. (for R52) • 1846-CTO, 3xx, 4xx, 6xx • 1847-CTO, 3xx, 4xx, 6xx • 1848-CTO, 3xx, 4xx, 6xx • 1849-CTO, 3xx, 4xx, 6xx • 1846-A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Cx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx • 1847-AEx, AFx, AGx, AHx, AJx, 92x, 93x, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx • 1848-AKx, ALx, 92x, 93x, 9Ux, 9Vx • 1849-ADx, AMx, ANx, APx, 9Wx, 9Xx, 9Yx, 9Zx, 91x • 1858-CTO, 4xx, 5xx, 6xx • 1859-CTO, 4xx, 5xx, 6xx • 1860-CTO, 4xx, 5xx, 6xx • 1861-CTO, 4xx, 5xx, 6xx	91P8725	N
	Ultrabay Enhanced shield kit for 15.0-in. FPR (for R52) • 1858-CTO, 9Hx, 9Jx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AGx, AHx, AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx • 1859-CTO, B9x, BAx, BFx, BGx, BHx, BJx, BKx, BLx, BMx • 1860-CTO, BTx, BUx, BVx, BWx, BXx, BYx, BZx, C2x, C3x, C4x, C5x, CAx, CBx • 1861-CTO, BUx, BZx, CAx, CBx	26R9703	N

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No.	FRU	P/N	CRU ID
4	CPU assembly, Intel Celeron M processor 340 (1.5 GHz) • 1834-LGx, RKx	93P4280	N
	CPU assembly, Intel Celeron M processor 350 (1.3 GHz) • 1834-K3x, K4x, K5x, K6x, K7x, K8x, K9x, KAx, KLx, KMx, KNx, KPx, KQx, KRx, KSx, KTx, KUx, KVx, M2x, M3x, M4x, M6x, M5x, M7x, M8x, M9x, MAx, MKx, MLx, MMx, MNx, MPx, MQx, RMx, RNx, S2x • 1858-CTO • 1859-CTO, 23x, 4Xx, 4Yx • 1860-CTO, 25x, 26x • 1861-CTO, 25x, 26x • 1958-CTO, 3Fx	93P4281	N
	CPU assembly, Intel Celeron M processor 360 (1.4 GHz) • 1834-KBx, KWx, KXx, KYx, KZx, LHx, MBx, MRx, MSx, MTx, RVx, RWx, RXx, S3x, S4x, S5x, S6x • 1843-23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Px, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 42x, 43x, 44x, 45x, 46x, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 5Sx, 5Tx, 5Ux • 1844-5Fx • 1858-CTO, 22x, 2Px, 2Qx, 3Qx, 42x, 4Tx, 4Ux, 6Nx, 6Px, 6Xx, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Px, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 42x, 43x, 44x, 45x, 46x, • 1859-CTO, 24x, 43x,, 4Zx, 6Vx • 1860-CTO, 3Rx, 3Sx • 1861-CTO, 3Tx, 3Ux • 1858-92x, 9Bx, AGx • 1860-C6x, C7x • 1861-C6x, C7x	93P4282	N
	CPU assembly, Intel Celeron M processor 370 (1.5 GHz) • 1834-KGx, KHx, KJx, MJx, RTx • 1843-22x, 24x, 2Xx, 2Yx, 3Ax, 3Bx, 3Cx, 3Qx, 47x, 48x, 49x, 4Ax, 4Bx, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx • 1858-CTO, 29x, 2Rx, 2Sx, 44x, 4Vx, 4Wx, 53x, 5Lx, 6Yx • 1859-CTO, 27x, 52x, 6Wx • 1860-CTO • 1861-CTO • 1858-9Ex, 9Jx, AHx	39T0331	N

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No.	FRU	P/N	CRU ID
4	CPU assembly, Intel Celeron M processor 380 (1.6 GHz) • 1843-2Dx, 2Ex, 3Dx, 3Ex, 3Fx, 3Nx, 4Hx, 4Jx, 4Kx, 4Lx, 4Mx, 4Nx • 1844-5Jx • 1858-CTO, 9Dx, 9Kx • 1859-CTO • 1860-CTO • 1861-CTO	39T5686	N
	CPU assembly, Intel Pentium M processor 725 (1.6 GHz) • 1834-KCx, KDx, L2x, L3x, L4x, L5x, L6x, Q2x, Q3x, Q4x, Q5x, Q6x, Q7x, Q8x, Q9x, QAx, QBx, QCx, MCx, MVx, MWx, MXx • 1842-QDx, QEx, QFx, MUx • 1858-CTO, 3Hx, 3Jx, 3Kx, 3Lx, 6Rx, 6Sx, 6Tx, 6Ux, 6Zx • 1859-CTO • 1860-CTO, 3Mx • 1861-CTO	91P7434	N
	CPU assembly, Intel Pentium M processor 730 (1.6 GHz) • 1846-CTO, 58x, 5Bx, 5Cx, 6Cx, 6Fx, 6Gx • 1847-CTO, 3Ax, 3Bx • 1849-CTO • 1858-CTO, 2Ux, 2Vx, 2Wx, 2Xx, 3Nx, 45x, 46x, 47x, 48x, 54x, 5Mx, 5Nx, 6Kx • 1859-CTO • 1860-CTO, 2Tx • 1861-CTO	39T0045	N
	CPU assembly, Intel Pentium M processor 735 (1.7 GHz) • 1834-KEx, KFx, L7x, L8x, L9x, LAx, LBx, LCx, LDx, LEx, MDx, MEx, MFx, MGx, MHx, MYx, MZx, R2x, R3x, R4x, R5x, R6x, R7x, R8x, R9x, RAx, RBx, RCx, RDx, REx, RFx, RGx, S7x	91P7387	N

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No.	FRU	P/N	CRU ID
4	CPU assembly, Intel Pentium M processor 740 (1.73 GHz) • 1843-25x, 26x, 2Zx, 32x, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 4Px, 4Qx, 4Rx, 4Sx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 54x, 55x, 56x, 57x, 58x, 5Lx • 1844-5Gx • 1846-CTO, 2Hx, 2Jx, 3Vx, 4Fx, 4Gx, 52x, 53x, 56x, 57x, 59x, 5Dx, 5Ex, 5Hx, 5Jx, 5Kx, 62x, 63x, 64x, 65x, 6Ax, 6Bx, 6Dx, 6Hx, 6Jx, 6Kx, 6Lx • 1847-CTO, 22x, 23x, 2Ax, 2Dx, 2Ex, 2Fx, 2Gx, 32x, 33x, 3Cx, 3Dx, 3Ex, 3Fx, 3Mx, 3Sx, 42x, 4Bx • 1848-CTO, 22x, 23x, 2Fx, 2Gx, 32x, 33x, 42x, 4Bx • 1849-CTO • 1850-22x • 1870-22x • 1846-84x, 85x, 8Ax, 94x, 95x, 9Ax, 9Bx, 9Cx • 1847-9Mx • 1848-22x, 23x, 32x, 33x, 42x, 2Fx, 2Gx, 4Bx • 1849-8Cx, 9Wx, 8Px, 8Qx, AMx, 9Zx • 1858-CTO, 2Ex, 2Zx, 32x, 33x, 34x, 3Bx, 3Gx, 3Px, 49x, 59x, 5Ax, 5Px, 5Qx, 5Tx, 5Ux, 5Vx, 5Wx, 67x, 68x, 69x, 6Ax, 6Bx, 6Mx, 6Qx • 1859-CTO, 28x, 2Ax, 2Hx, 35x, 4Ax, 4Bx, 55x, 5Rx, 6Lx • 1860-CTO, 2Bx, 2Fx, 2Kx, 2Yx, 32x, 3Bx, 56x, 57x, 58x, 5Ex, 5Sx, 5Ux, 69x • 1861-CTO, 2Bx, 2Fx, 2Kx, 2Yx, 32x, 3Bx, 56x, 5Ex, 5Sx, 69x • 1862-2Cx • 1863-2Dx • 1858-93x, 94x, 97x, 9Fx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, B2x, B4x, CCx • 1859-B6x, B7x, B8x, B9x, BAx, BBx, BFx • 1860-9Fx, BPx, BYx	39T0046	N
	CPU assembly, Intel Pentium M processor 745 (1.8 GHz) • 1834-LFx, RHx, RJx, RPx, RQx, S8x, S9x	91P7357	N

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No.	FRU	P/N	CRU ID
4	CPU assembly, Intel Pentium M processor 750 (1.86 GHz) • 1843-27x, 28x, 29x, 3Mx, 59x, 5Ax, 5Bx, 5Cx, 5Dx • 1844-5Hx • 1845-5Kx • 1846-CTO, 3Wx, 4Cx, 4Hx, 4Jx, 5Ax, 5Fx, 5Gx, 5Lx, 5Mx, 5Nx, 5Rx, 66x, 6Ex, 6Mx, 6Nx, 6Px, 6Qx, 6Rx, 6Tx, 6Ux • 1847-CTO, 24x, 28x, 29x, 2Bx, 2Cx, 34x, 38x, 39x, 3Gx, 3Hx, 3Jx, 3Kx, 3Nx, 3Px, 3Qx, 3Rx, 3Tx, 46x, 48x • 1848-CTO, 24x, 34x • 1849-CTO, 4Qx, 4Tx, 5Xx, 6Yx • 1846-86x, 87x, A4x, 96x, 97x, 98x, 9Dx • 1847-82x, 83x, 92x, 93x, 8Fx, 8Gx, AFx, 9Nx, 9Px, 9Qx, 9Rx, 8Jx, 8Kx, AJx • 1848-82x, 83x, 92x, 93x, 8Mx, 8Nx, ALx • 1849-8Dx, ADx, 8Rx, 8Sx, ANx, 9Xx, 91x • 1858-CTO, 37x, 38x, 3Cx, 3Dx, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 5Fx, 5Gx, 5Hx, 5Xx, 5Yx, 62x, 6Cx, 6Dx, 6Ex, 6Fx, 6Hx • 1859-CTO, 39x, 4Hx, 5Dx, 63x • 1860-CTO, 2Lx, 2Mx, 2Nx, 3Ex, 4Qx, 5Bx, 5Cx, 5Gx, 5Hx, 5Zx, 6Fx, 6Gx • 1861-CTO, 3Ex, 6Fx, 6Gx • 1858-95x, 96x, 98x, 99x, 9Ax, 9Gx, 9Hx, 9Lx, A3x, A4x, A5x, A6x, A8x, ABx, ACx, ADx, AEx, AFx, AWx, B3x, B5x • 1859-BCx, BGx • 1860-9Gx, BQx, BTx, BUx, BXx, BZx, C4x, C8x, C9x, CAx, CBx • 1861-9Gx, BUx, BZx, C8x, C9x, CAx, CBx	39T0047	N
	CPU assembly, Intel Pentium M processor 755 (2.0 GHz) • 1834-RRx, RSx, RUx	93P4225	N

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No.	FRU	P/N	CRU ID
4	CPU assembly, Intel Pentium M processor 760 (2.0 GHz) • 1843-2Ax, 2Bx, 2Cx • 1846-CTO, 4Dx, 4Kx, 4Lx, 4Mx, 4Nx, 54x, 5Px, 5Qx, 67x, 68x, 6Sx • 1847-CTO, 25x, 35x, 3Lx, 3Ux, 43x, 47x, 49x, 4Ax • 1848-CTO, 25x, 35x, 43x • 1849-CTO, 4Ux, 5Yx, 6Zx • 1846-88x, 89x, A5x, A6x, A7x, A8x, A9x, 99x, 9Gx, 9Hx • 1847-8Ex, 8Hx, AGx, 9Lx, 9Sx, 9Tx • 1848-25x, 35x, 43x • 1849-8Tx, APx, 9Yx • 1858-CTO, 4Kx, 4Lx, 4Mx, 4Nx, 5Jx, 65x, 6Jx • 1859-CTO, 3Ax, 4Px, 4Rx, 4Sx, 66x • 1860-CTO, 4Jx, 4Mx, 5Kx, 6Jx • 1861-CTO, 4Mx, 6Jx • 1858-9Mx, A7x, A9x, AXx • 1859-BDx, BHx, BLx • 1860-BRx, BSx, BWx, C2x, C3x, C5x	39T0048	N
	CPU assembly, Intel Pentium M processor 770 (2.13 GHz) • 1843-5Ex • 1846-CTO, 4Ex, 55x, 69x • 1847-CTO, 26x, 27x, 36x, 37x, 44x, 45x • 1848-CTO, 26x, 27x, 36x, 37x, 44x, 45x • 1849-CTO • 1846-8Bx, A2x, AAx, ABx • 1847-AEx, AHx • 1848-9Vx • 1858-CTO, AAx, AJx, AYx • 1859-CTO, BEx, BJx, BMx • 1860-CTO, BVx • 1861-CTO	39T0049	N
	CPU assembly, Intel Pentium M processor 780 (2.26 GHz) • 1846-CTO, A3x, ACx • 1848-CTO, AKx • 1858-CTO, AKx	39T0460	N

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No.	FRU	P/N	CRU ID
5	ThinkPad Integrated 56K Modem (MDC-2) • 1843-2xx, 3xx, 4xx, 5xx • 1844-5xx • 1845-5xx • 1846-CTO, 2Hx, 3Vx, 3Wx , 52x, 53x, 56x, 57x, 58x, 59x, 5Ax, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Hx, 5Jx, 5Kx, 5Lx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 62x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Gx, 6Hx, 6Jx, 6Kx, 6Lx, 6Mx, 6Nx, 6Px, 6Qx, 6Rx, 6Sx • 1847-CTO, 22x, 23x, 26x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 2Fx, 2Gx, 32x, 33x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 46x, 48x, 49x, 4Bx • 1848-CTO, 22x, 23x, 26x, 2Fx, 2Gx, 32x, 33x, 4Bx • 1849-CTO, 4Px, 4Rx, 4Sx, 5Sx, 5Tx, 5Ux, 5Vx, 5Wx, 6Vx, 6Wx, 6Xx • 1850-22x • 1870-22x • 1846-84x, 85x, 86x, 87x, 88x, 89x, 8Ax, 94x, 95x, 96x, 97x, 99x, 9Ax, 9Bx, 9Dx, 9Gx • 1847-82x, 83x, 8Ex, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx, 92x, 93x, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Sx, 9Tx, AEx, AFx, AGx, AHx, AJx • 1848-82x, 83x, 8Mx, 8Nx, 92x, 93x, ALx • 1849-8Cx, 8Rx, 8Sx, 8Tx, 91x, 9Wx, 9Xx • 1858-CTO, 92x, 93x, 94x, 97x, 98x, 99x, 9Ax, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx, 9Jx, 9Lx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, ABx, ACx, ADx, AEx, AFx, AGx, AHx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, B2x, B3x, B4x, B5x, CCx • 1859-CTO, B6x, B7x, B8x, B9x, BAx, BBx, BCx, BDx, BEx, BFx, BGx, BHx, BJx • 1860-CTO, 9Fx, 9Gx, BPx, BQx, BRx, BSx, BTx, BUx, BXx, BYx, BZx, C2x, C3x, C4x, C5x, C6x, C7x, C8x, C9x, CAx, CBx • 1861-CTO, 9Gx, BUx, BZx, C6x, C7x, C8x, C9x, CAx, CBx	39T0061	**

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No.	FRU	P/N	CRU ID
5	ThinkPad Integrated 56K Modem (MDC-2) • 1834-Kxx, Lxx, Mxx, Qxx, Rxx, Sxx • 1842-Mxx, Qxx • 1858-CTO, 2xx, 32x, 37x, 38x, 42x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Cx, 4Dx, 4Gx, 4Kx, 4Lx, 4Tx, 4Ux, 4Vx, 4Wx, 4Yx, 53x, 54x, 59x, 5Ax, 5Fx, 5Gx, 5Hx, 5Jx, 5Lx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 5Tx, 5Ux, 5Vx, 5Wx, 5Xx, 5Yx, 62x, 64x, 65x, 6Kx, • 1859-CTO, 2xx, 3xx, 4xx, 5xx, 6xx • 1860-CTO, 2xx, 32x, 4Jx, 4Qx, 5xx • 1861-CTO, 2xx, 32x, 5xx • 1862-CTO, 2xx • 1863-CTO, 2xx	93P4166	**
	ThinkPad Integrated *Bluetooth* IV with 56K Modem (BMDC-3) • 1858-CTO, 3Bx, 3Cx, 3Dx, 4Ex, 4Fx, 4Mx, 4Nx, 67x, 68x, 69x, 6Ax, 6Bx, 6Ex, 6Cx, 6Dx, 6Fx, 6Hx, 6Jx • 1859-CTO • 1860-CTO, 3Bx, 3Ex, 4Mx, 69x, 6Fx, 6Gx, 6Jx • 1861-CTO, 3Bx, 3Ex, 4Mx, 69x, 6Fx, 6Gx, 6Jx • 1862-CTO • 1863-CTO • 1858-CTO, 95x, 96x, 9Kx, 9Mx, A4x, A5x, A6x, A7x, A8x, A9x, AAx, AJx, AKx, AXx, AYx • 1859-CTO, BKx, BLx, BMx • 1860-CTO, BVx, BWx	39T0022	**

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No.	FRU	P/N	CRU ID
5	ThinkPad Integrated *Bluetooth* IV with 56K Modem (BMDC-3) • 1846-CTO, 54x, 55x, 63x, 64x, 65x, 66x, 67x, 68x, 69x, 6Tx, 6Ux, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Hx, 4Jx, 4Kx, 4Lx, 4Mx, 4Nx, 2Jx • 1847-CTO, 24x, 25x, 27x, 34x, 35x, 36x, 37x, 3Ux, 42x, 43x, 44x, 45x, 47x, 4Ax • 1848-CTO, 24x, 25x, 27x, 34x, 35x, 36x, 37x, 42x, 43x, 44x, 45x • 1849-CTO, 5Xx, 5Yx, 6Yx, 6Zx, 4Qx, 4Tx, 4Ux • 1846-8Bx, 98x, 9Cx, 9Ex, 9Fx, 9Hx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx • 1847-9Rx • 1848-8Lx, 9Ux, 9Vx, AKx • 1849-8Dx, 8Px, 8Qx, 9Yx, 9Zx, ADx, AMx, ANx, APx	39T0024	**
6	256-MB DDR SDRAM SO DIMM (PC2700) OP • 1834-K3x, K4x, K5x, K6x, K7x, K8x, K9x, KAx, KBx, KCx, KDx, KEx, KFx, KGx, KHx, KJx, KLx, KPx, KQx, KRx, KSx, KTx, KWx, KXx, KYx, KZx, L2x, L3x, L4x, L5x, L6x, L7x, L8x, L9x, LAx, LCx, LDx, LEx, LFx, LGx, LHx, M2x, M3x, M4x, M5x, M6x, MBx, MCx, MDx, MEx, MFx, MGx, MHx, MJx, MRx, MSx, MTx, MVx, Q2x, Q4x, Q5x, Q6x, Q7x, Q8x, Q9x, QBx, QCx, R3x, R4x, R5x, R6x, R7x, R8x, RCx, RKx, RMx, RNx, RPx, RVx, S2x, S3x, S4x, S5x, S6x • 1842-MUx, QDx, QFx	31P9831	*
	512-MB DDR SDRAM SO DIMM (PC2700) OP • 1834-KUx, KVx, LBx, M7x, M8x, M9x, MAx, MMx, MNx, MPx, MQx, MWx, MXx, Q3x, QAx, R9x, RAx, RBx, RDx, REx, RFx, RGx, RHx, RJx, RQx, RRx, RSx, RTx, RUx, RWx, RXx, S7x, S8x, S9x • 1842-QEx	31P9833	*

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No.	FRU	P/N	CRU ID
6	256-MB DDR SDRAM SO DIMM (PC2-4200) **OP** • 1843-22x, 23x, 24x, 25x, 26x, 27x, 28x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Px, 2Qx, 2Rx, 2Sx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 3Ax, 3Bx, 3Cx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Nx, 3Px, 3Qx, 3Vx, 3Wx, 3Xx, 42x, 47x, 4Dx, 4Px, 4Sx, 4Tx, 4Ux, 4Yx, 52x, 5Ax, 5Bx, 5Lx, 5Tx, 5Ux • 1844-5Fx, 5Jx • 1846-CTO, 52x, 56x, 57x, 58x, 59x, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Hx, 5Jx, 5Kx, 5Lx, 62x, 6Ax, 6Bx, 6Cx, 6Dx, 6Fx, 6Gx, 6Hx, 6Jx, 6Kx, 6Lx, 6Mx, 6Nx, 6Tx, 6Ux • 1847-CTO, 23x, 28x, 2Ax, 2Dx, 2Ex, 33x, 38x, 3Ax, 3Bx, 3Cx, 3Mx, 3Nx, 3Px, 3Rx, 3Ux • 1848-CTO, 23x, 33x • 1849-CTO, 5Tx, 5Ux • 1846-CTO, 84x, 85x, 86x, 87x, 94x, 96x, 98x, 9Ax, 9Bx, 9Cx • 1847-CTO, 9Mx • 1848-CTO, 9Ux • 1849-CTO • 1858-CTO, 22x, 28x, 29x, 2Ex, 2Px, 2Qx, 2Rx, 2Sx, 2Ux, 2Vx, 2Wx, 2Xx, 2Zx, 32x, 33x, 34x, 37x, 38x, 3Cx, 3Dx, 4Cx, 4Tx, 4Ux, 4Yx, 53x, 5Lx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 5Tx, 5Ux, 5Xx, 5Yx, 64x, 67x, 68x, 6Cx • 1859-CTO, 2Ax, 2Hx • 1860-CTO, 25x, 2Bx, 2Fx, 2Kx, 2Lx, 2Mx, 2Tx, 2Yx, 32x, 56x, 5Bx, 5Ux, 5Zx • 1861-CTO, 25x, 26x, 2Bx, 2Fx, 2Gx, 2Kx, 32x, 56x • 1862-CTO, 2Cx • 1863-CTO, 2Dx • 1858-CTO, 92x, 93x, 94x, 97x, 98x, 99x, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx, 9Jx, 9Kx, 9Nx, 9Px, 9Qx, 9Rx, A2x, A4x, A8x, AGx, AHx, AWx, CCx • 1859-CTO, B6x, B7x, B9x • 1860-CTO, BPx, 9Fx, 9Gx, BSx, BYx, C3x, C6x, C7x, C8x, C9x • 1861-CTO, 9Gx, C6x, C7x, C8x, C9x	73P3841	*

(continued)

No.	FRU	P/N	CRU ID
6	512-MB DDR SDRAM SO DIMM (PC2-4200) **OP** • 1843-29x, 2Ax. 2Bx, 2Cx, 2Dx, 2Ex, 2Mx, 2Nx, 2Tx, 2Ux, 2Vx, 2Wx, 3Dx, 3Lx, 3Mx, 3Rx, 3Sx, 3Tx, 3Ux, 3Yx, 3Zx, 43x, 44x, 48x, 49x, 4Ax, 4Bx, 4Cx, 4Ex, 4Fx, 4Gx, 4Hx, 4Jx, 4K, 4Lx, 4Mx, 4Nx, 4Qx, 4Rx, 4Vx, 4Wx, 4Xx, 4Zx, 53x, 54x, 55x, 59x, 5Cx, 5Dx, 5Ex, 5Nx, 5Px, 5Qx, 5Rx, 5Sx • 1844-5Gx, 5Hx • 1845-5Kx • 1846-CTO, 53x, 54x, 55x, 5Ax, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 63x, 64x, 65x, 66x, 67x, 68x, 69x, 6Ex, 6Px, 6Qx, 6Rx, 6Sx, 4Cx, 4Dx, 4Fx, 4Gx, 4Hx, 4Jx, 4Kx, 4Lx, 4Nx, 2Hx, 2Jx, 3Vx, 3Wx • 1847-CTO, 22x, 24x, 25x, 26x, 29x, 2Bx, 2Cx, 32x, 34x, 35x, 36x, 39x, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Qx, 3Sx, 3Tx, 42x, 43x, 44x, 46x, 47x, 48x, 49x, 4Ax, 2Fx, 2Gx • 1848-CTO, 22x, 24x, 25x, 26x, 32x, 34x, 35x, 36x, 42x, 43x, 44x, 2Fx, 2Gx • 1849-CTO, 5Sx, 6Vx, 4Px, 4Qx, 4Rx • 1846-CTO, 88x, 89x, 8Ax, 8Bx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, 95x, 97x, 99x, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx • 1847-CTO, 82x, 83x, 92x, 93x, 8Ex, 8Fx, 8Gx, 8Hx, AEx, AFx, AGx, AHx, 9Lx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 8Jx, 8Kx • 1848-CTO, 82x, 83x, 92x, 93x, 8Lx, AKx, 9Vx, 8Mx, 8Nx • 1849-CTO, 8Cx, 8Dx, 9Wx, ADx • 1850-22x • 1870-22x • 1858-CTO, 3Bx, 42x, 44x, 45x, 46x, 47x, 49x, 4Ax, 4Dx, 4Ex, 4Fx, 4Gx, 4Kx, 4Lx, 4Mx, 4Nx, 4Vx, 4Wx, 54x, 59x, 5Ax, 5Fx, 5Gx, 5Hx, 5Jx, 5Vx, 5Wx, 62x, 65x, 69x, 6Ax, 6Bx, 6Dx, 6Ex, 6Fx, 6Hx, 6Jx, 6Kx • 1859-CTO, 4Rx, 4Sx, 55x, 5Dx • 1860-CTO, 2Nx, 3Bx, 3Ex, 4Jx, 4Mx, 4Qx, 57x, 58x, 5Cx, 5Ex, 5Gx, 5Hx, 5Kx, 5Sx, 69x, 6Fx, 6Gx, 6Jx (continued)	73P3843	*

(continued)

No.	FRU	P/N	CRU ID
6	512-MB DDR SDRAM SO DIMM (PC2-4200) **OP** • 1861-CTO, 3Bx, 3Ex, 4Mx, 5Ex, 5Sx, 69x, 6Fx, 6Gx, 6Jx • 1862-CTO • 1863-CTO • 1858-CTO, 95x, 96x, 9Ax, 9Lx, 9Mx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A3x, A5x, A6x, A7x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AXx, AYx • 1859-CTO, B8x, BAx • 1860-CTO, BQx, BRx, BTx, BUx, BVx, BWx, BXx, BZx, C2x, C4x, C5x, CAx, CBx • 1861-CTO, BUx, BZx, CAx, CBx	73P3843	*
	1-GB DDR SDRAM SO DIMM (PC2-4200) **OP** • 1846-CTO, 4Ex, 4Mx • 1847-CTO, 27x, 37x, 45x, 4Bx • 1848-CTO, 27x, 37x, 45x, 4Bx • 1847-AJx • 1848-ALx • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO • 1862-CTO • 1863-CTO	73P3845	*
	For optional DIMMs, see “Optional FRUs” on page 259.		
7	VGA and Ultrabay eject button cable 14/15 (for R50e, R51e)	91P6834	N
	VGA cable, 14 (for R50e, R51e)	91P6867	N
	VGA cable, 15 (for R50e, R51e)	91P6869	N
	VGA and Ultrabay eject button cable 14/15 (for R52)	91P6828	N
8	Interposer card for R50e, R51e • 1834-Mxx, Q2x, Q3x, Q6x, Q7x, QAx, Rxx, Sxx • 1842-Mxx, Qxx • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx • 1844-5Gx, 5Hx • 1845-5Kx	91P7413	N

(continued)

No.	FRU	P/N	CRU ID
8	Interposer card for R52 • 1846-CTO, 3xx, 4xx, 6xx • 1847-CTO, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Bx, EEx, EFx, EGx • 1848-CTO, 32x, 33x, 34x, 35x, 36x, 37x, 42x, 43x, 44x, 45x, 4Bx • 1848-CTO, 6Yx, 6Zx, 4Qx, 4Tx, 4Ux • 1858-CTO, 4xx, 5xx, 6xx • 1859-CTO, 4xx, 5xx, 6xx • 1860-CTO, 4xx, 5xx, 6xx • 1861-CTO, 4xx, 5xx, 6xx • 1862-CTO • 1863-CTO	91P7427	N
	Interposer card for R52 • 1846-CTO, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Cx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx • 1847-CTO, 92x, 93x, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, AEx, AFx, AGx, AHx, AJx • 1848-CTO, 92x, 93x, 9Ux, 9Vx, AKx, ALx • 1848-CTO, 9Wx, 9Xx, 9Yx, 9Zx, 91x, ADx, AMx, ANx, APx • 1858-CTO, 9Hx, 9Jx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AGx, AHx, AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B2x, B3x, B4x, B5x • 1859-CTO, B9x, BAx, BFx, BGx, BHx, BJx, BKx, BLx, BMx • 1860-CTO, BTx, BUx, BVx, BWx, BXx, BYx, BZx, C2x, C3x, C4x, C5x, CAx, CBx • 1861-CTO, BUx, BZx, CAx, CBx	39T0030	N

(continued)

No.	FRU	P/N	CRU ID
9	Battery pack, Li-ion (6 cell), 4.4 Ah Panasonic **OP** • 1834-Kxx except KMx, KNx; Lxx; Mxx except MK, MLx, MYx, MZx; Qxx; Rxx except R2x, Sxx • 1842-Mxx, Qxx • 1843-all • 1844-all • 1845-all • 1858-CTO, 22x, 28x, 29x, 2Ex, 2Px, 2Rx, 2Qx, 2Sx, 2Ux, 2Vx, 2Wx, 2Xx, 2Zx, 32x, 33x, 34x, 37x, 38x, 3Bx, 3Dx, 42x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Kx, 4Lx, 4Mx, 4Tx, 4Ux, 4Vx, 4Wx, 4Yx, 53x, 54x, 59x, 5Ax, 5Fx, 5Gx, 5Hx, 5Jx, 5Lx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 5Tx, 5Vx, 5Ux, 5Wx, 5Xx, 5Yx, 62x, 64x, 67x, 68x, 69x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Hx, 6Jx, 6Kx • 1859-CTO, 23x, 24x, 27x, 2Ax, 2Hx, 35x, 39x, 3Ax, 43x, 4Bx, 4Hx, 4Px, 4Rx, 4Sx, 4Xx, 4Zx, 52x, 55x, 5Dx, 63x, 66x • 1860-CTO, 25x, 2Bx, 2Fx, 2Kx, 2Lx, 2Mx, 2Nx, 2Tx, 2Yx, 32x, 3Bx, 3Ex, 4Jx, 4Mx, 4Qx, 56x, 57x, 58x, 5Bx, 5Cx, 5Ex, 5Gx, 5Hx, 5Kx, 5Sx, 5Ux, 5Zx, 69x, 6Fx, 6Gx, 6Jx • 1861-CTO, 25x, 26x, 2Bx, 2Fx, 2Gx, 2Kx, 32x, 3Bx, 3Ex, 4Mx, 56x, 5Ex, 5Sx, 69x, 6Fx, 6Gx, 6Jx • 1862-CTO, 2Cx • 1863-CTO, 2Dx	92P1060	*

(continued)

No.	FRU	P/N	CRU ID
9	Battery pack, Li-ion (6 cell), 4.4 Ah, Sanyo • 1846-CTO, 2Hx, 2Jx, 3Vx, 3Wx, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Hx, 4Jx, 4Kx, 4Nx, 52x, 53x, 54x, 55x, 56x, 57x, 58x, 59x, 5Ax, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Hx, 5Jx, 5Kx, 5Lx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 62x, 63x, 64x, 65x, 66x, 67x, 68x, 69x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Gx, 6Hx, 6Jx, 6Kx, 6Lx, 6Mx, 6Nx, 6Px, 6Qx, 6Rx, 6Sx, 6Tx, 6Ux • 1847-CTO, 22x, 23x, 24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 2Fx, 2Gx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 42x, 43x, 44x, 45x, 46x, 48x, 49x, 4Ax, 4Bx • 1848-CTO, 22x, 23x, 24x, 25x, 26x, 27x, 2Fx, 2Gx, 32x, 33x, 34x, 35x, 36x, 37x, 42x, 43x, 44x, 45x, 4Bx • 1849-CTO, 4Px, 4Qx, 4Rx, 5Sx, 5Tx, 5Ux, 6Vx • 1850-CTO, 22x • 1870-CTO, 22x	08K8193	*
	Battery pack, Li-ion (6 cell), 4.4 Ah (for R52) **OP** • 1843-all • 1844-all • 1845-all • 1846-CTO, 2Hx, 2Jx, 3Vx, 3Wx, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Hx, 4Jx, 4Kx, 4Nx, 52x, 53x, 54x, 55x, 56x, 57x, 58x, 59x, 5Ax, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Hx, 5Jx, 5Kx, 5Lx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 62x, 63x, 64x, 65x, 66x, 67x, 68x, 69x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Gx, 6Hx, 6Jx, 6Kx, 6Lx, 6Mx, 6Nx, 6Px, 6Qx, 6Rx, 6Sx, 6Tx, 6Ux • 1847-CTO, 22x, 23x, 24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 2Fx, 2Gx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 42x, 43x, 44x, 45x, 46x, 48x, 49x, 4Ax, 4Bx • 1848-CTO, 22x, 23x, 24x, 25x, 26x, 27x, 2Fx, 2Gx, 32x, 33x, 34x, 35x, 36x, 37x, 42x, 43x, 44x, 45x, 4Bx • 1849-CTO, 4Px, 4Qx, 4Rx, 5Sx, 5Tx, 5Ux, 6Vx • 1850-CTO, 22x • 1870-CTO, 22x		
	Sanyo	92P1075	*
	Sony	92P1011	*
	Sony	92P1071	*

(continued)

No.	FRU	P/N	CRU ID
9	Battery pack, Li-ion (6 cell), 2.4 Ah (for R52) • 1843-all • 1844-all • 1845-all • 1846-CTO, 8xx, 9xx, A4x, A5x, A6x, A7x, A8x, A9x, AAx, • 1847-CTO, 8xx, 9xx, Axx • 1848-CTO, 8xx, 9xx, Axx • 1849-CTO, 8Cx, 8Dx, 9Wx, ADx • 1858-CTO; 9xx; Axx except AJx, AKx; CCx • 1859-CTO, B6x, B7x, B8x, B9x, BAx • 1860-CTO, 9xx, Bxx, Cxx • 1861-CTO, 9xx, Bxx, Cxx		
	Sanyo	92P1087	*
	Sony	92P1089	*
	Panasonic	92P1091	*
	Battery pack, Li-ion (9 cell), 6.6 Ah (for R52) **OP** • 1846-CTO, 4Lx, 4Mx • 1847-CTO, 47x		
	Sanyo	08K8198	*
	Sony	92P1013	*
	Battery pack, Li-ion (9 cell), 7.2 Ah • 1858-CTO, 3Cx, 4Nx, 65x • 1859-CTO, 3Cx, 4Nx, 65x • 1860-CTO, 3Bx, 3Ex, 2Bx, 2Tx, 2Lx, 32x, 2Kx, 2Fx, 2Mx, 2Nx, 4Mx, 4Jx, 4Qx, 69x, 6Fx, 6Gx, 6Jx, 5Ux, 5Zx, 57x, 5Kx, 5Hx, 5Ex, 56x, 5Bx, 5Cx, 25x, 2Yx, 5Sx, 58x, 5Gx • 1861-CTO, 2Bx, 2Fx, 32x, 2Kx, 3Bx, 3Ex, 4Mx, 56x, 69x, 5Ex, 6Fx, 6Gx, 6Jx, 25x, 26x, 2Gx, 5Sx • 1862-CTO • 1863-CTO • 1858-AJx, AKx		
	Sanyo	92P1077	*
	Sony	92P1073	*

(continued)

No.	FRU	P/N	CRU ID
9	Battery pack, Li-ion (9 cell), 7.2 Ah, Panasonic • 1858-CTO, 3Cx, 4Nx, 65x • 1859-CTO, 3Cx, 4Nx, 65x • 1860-CTO, 3Bx, 3Ex, 2Bx, 2Tx, 2Lx, 32x, 2Kx, 2Fx, 2Mx, 2Nx, 4Mx, 4Jx, 4Qx, 69x, 6Fx, 6Gx, 6Jx, 5Ux, 5Zx, 57x, 5Kx, 5Hx, 5Ex, 56x, 5Bx, 5Cx, 25x, 2Yx, 5Sx, 58x, 5Gx • 1861-CTO, 2Bx, 2Fx, 32x, 2Kx, 3Bx, 3Ex, 4Mx, 56x, 69x, 5Ex, 6Fx, 6Gx, 6Jx, 25x, 26x, 2Gx, 5Sx • 1862-CTO • 1863-CTO • 1858-AJx, AKx • 1846-A2x, A3x, ABx, ACx	92P1069	*
	For optional battery packs, see “Optional FRUs” on page 259.		
10	Base cover assembly 1834		
	14.1-in. • 1834-Kxx, Lxx, Q4x, Q5x, Q8x, Q9x, QBx, QCx	26R8624	N
	15.0-in. • 1834-Mxx, Q2x, Q3x, Q6x, Q7x, QAx, Rxx, Sxx	26R8629	N
	Base cover assembly 1842		
	15.0-in. • 1842-Mxx, Qxx	26R8922	N
	Base cover assembly 1843		
	14.1-in. WW • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 5L	41V9042	N
	15.0-in. WW • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx	41V9043	N
	14.1-in. Taiwan • 1843-2HV, 2ZV, 36V, 3EV, 3FV ,3GV, 3JV, 3MV	41V9044	N
	15.0-in. Taiwan • 1844-3NV, 59V	41V9045	N

(continued)

No.	FRU	P/N	CRU ID
10	Base cover assembly 1844		
	14.1-in. WW • 1844-CTO	41V9046	N
	15.0-in. WW • 1844-CTO	41V9047	N
	Base cover assembly 1845		
	14.1-in. WW • 1845-CTO	41V9048	N
	15.0-in. WW • 1845-CTO	41V9049	N
	14.1-in. Taiwan • 1845-CTO	41V9050	N
	15.0-in. Taiwan • 1845-CTO	41V9051	N
	Base cover assembly 1846		
	14.1-in. • 1846-CTO, 5xx, 2xx • 1846-CTO, 84x, 85x, 86x. 87x, 88x, 89x, 8Ax, 8Bx	26R8771	N
	15.0-in. • 1846-CTO, 3xx, 4xx, 6xx • 1846-CTO, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Cx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx	26R8775	N
	Base cover assembly 1847		
	14.1-in. • 1847-CTO, 5xx, 2xx • 1847-CTO, 82x, 83x, 8Ex, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx	26R8772	N
	15.0-in. • 1847-CTO, 3xx, 4xx, 6xx • 1847-CTO, AEx, AFx, AGx, AHx, AJx, 92x, 93x, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx	26R8776	N
	Base cover assembly 1848		
	14.1-in. • 1848-CTO, 2xx, 5xx • 1848-CTO, 82x, 83x, 8Lx, 8Mx, 8Nx	26R8769	N
	15.0-in. • 1848-CTO, 3xx, 4xx, 6xx • 1848-CTO, AKx, ALx, 92x, 93x, 9Ux, 9Vx	26R8773	N

(continued)

No.	FRU	P/N	CRU ID
10	Base cover assembly 1849		
	14.1-in. • 1849-CTO, 2xx, 5xx • 1849-CTO, 8Cx, 8Dx, 8Px, 8Qx, 8Rx, 8Sx, 8Tx	26R8770	N
	15.0-in. • 1849-CTO, 3xx, 4xx, 6xx • 1849-CTO, ADx, AMx, ANx, APx, 9Wx, 9Xx, 9Yx, 9Zx, 91x	26R8774	N
	Base cover assembly 1850		
	14.1-in WW • 1850-22x	26R8633	N
	Base cover assembly 1858		
	14.1-in. • 1858-CTO, 2xx, 3xx • 1858-CTO, 92x, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, CCx	26R8737	N
	15.0-in. • 1859-CTO, 4xx, 5xx, 6xx • 1858-9Hx, 9Jx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AGx, AHx, AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B2x, B3x, B4x, B5x	26R8743	N
	Base cover assembly 1859		
	14.1-in. • 1859-CTO, 2xx, 3xx • 1859-CTO, B6x, B7x, B8x, BBx, BCx, BDx, BEx	26R8738	N
	15.0-in. • 1859-CTO, 4xx, 5xx, 6xx • 1859-B9x, BAx, BFx, BGx, BHx, BJx, BKx, BLx, BMx	26R8744	N
	Base cover assembly 1860		
	14.1-in. WW • 1860-CTO, 2xx, 3xx • 1860-CTO, BPx, 9Fx, 9Gx, BQx, BRx, BSx, C6x, C7x, C8x, C9x	26R8739	N
	15.0-in. WW • 1860-CTO, 4xx, 5xx, 6xx • 1860-BTx, BUx, BVx, BWx, BXx, BYx, BZx, C2x, C3x, C4x, C5x, CAx, CBx	26R8745	N

(continued)

No.	FRU	P/N	CRU ID
10	Base cover assembly 1861		
	14.1-in. WW • 1861-CTO, 2xx, 3xx • 1861-CTO, 9Gx	26R8740	N
	15.0-in. • 1861-CTO, 4xx, 5xx, 6xx • 1861-BUx, BZx	26R8746	N
	Base cover assembly 1862		
	14.1-in. WW • 1862-CTO	26R8741	N
	15.0-in.WW • 1862-CTO	26R8747	N
	Base cover assembly 1863		
	14.1-in. WW • 1863-CTO	26R8742	N
	15.0-in.WW • 1863-CTO	26R8748	N
	Base cover assembly 1870		
	14.1-in. WW • 1870-22x	26R8633	N
11	CD-ROM drive, 12.7 mm, HLDS (CRN-8245B-AIBMJ0) • 1834-K3x, K4x, K5x, K6x, KMx, KPx, KQx, KRx, M2x, M3x, M4x, M7x, M8x, MDx, MEx, MKx, MMx, MNx, MYx, R4x, R5x, QBx, QCx	92P6565	*
	CR-ROM drive, 12.7 mm, TEAC (CD-224E-C) • 1834-K3x, K4x, K5x, K6x, KMx, KPx, KQx, KRx, M2x, M3x, M4x, M7x, M8x, MDx, MEx, MKx, MMx, MNx, MYx, R4x, R5x, QBx, QCx • 1846-CTO • 1847-CTO, 3Bx • 1848-CTO • 1849-CTO • 1858-CTO, 22x, 29x, 4Tx, 4Ux • 1860-CTO, 25x, 2Mx, 57x, 58x, 5Bx, 5Kx • 1861-CTO, 25x • 1858-9Bx, 9Ex, 9Nx, 9Px, 9Qx, 9Rx, CCx • 1860-BSx, C6x • 1861-C6x	92P6561	*

(continued)

No.	FRU	P/N	CRU ID
11	CD-ROM drive, 12.7 mm, TEAC (CD-224EN) • 1843-2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Yx, 2Zx, 32x, 38x, 3Px, 3Qx, 3Tx, 3Ux, 3Vx, 3Wx, 3Yx, 3Zx, 45x, 4Qx, 4Rx, 56x, 5Tx, 5Ux	39T2660	*
	DVD-ROM drive, 9.5 mm, HLDS (GDR-8083N) • 1846-CTO • 1847-CTO • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	92P6579	*
	DVD-ROM drive, 12.7 mm • 1834-KCx, KEx, KGx, KHx, KYx, L2x, L8x, LDx, LGx, LHx, M5x, M6x, Q5x, Q9x, RKx • 1843-22x, 23x, 2Fx, 2Xx, 34x, 3Bx, 3Kx, 3Nx, 3Xx, 4Yx • 1844-5Fx • 1846-CTO, 52x, 56x, 57x, 5Bx, 5Dx, 5Fx, 5Hx, 5Kx, 5Lx, 62x, 6Hx, 6Lx • 1847-CTO, 23x, 2Dx, 33x, 3Ax, 3Dx, 3Fx, 3Gx, 3Px • 1848-CTO, 23x, 33x • 1849-CTO • 1846-CTO, 84x, 85x, 86x • 1847-CTO • 1848-CTO • 1849-CTO • 1858-CTO, 2Ex, 2Px, 2Qx, 2Rx, 2Wx, 2Xx, 33x, 34x, 38x, 4Vx, 53x, 54x, 5Ax, 5Hx, 5Lx, 5Tx • 1859-CTO • 1860-CTO, 2Lx, 2Kx, 56x, 5Hx • 1861-CTO, 2Kx, 56x • 1858-CTO, 92x, 97x, 9Jx, B6x • 1859-CTO, 92x, 97x, 9Jx, B6x • 1860-CTO, 92x, 97x, 9Jx, B6x • 1861-CTO, 92x, 97x, 9Jx, B6x		
	HLDS (GDR-8082N-IMJ0)	92P6567	*
	MKE (SR-8177, SR-8178)	92P6571	*
	HLDS (GDR-8084)	39T2664	*

(continued)

No.	FRU	P/N	CRU ID
11	DVD/CD-RW combo drive, 12.7 mm, PCC (UJDA750, UJDA760) • 1834-K7x, K8x, K9x, KAx, KBx, KFx, KJx, KLx, KNx, KSx, KTx, KUx, KVx, KWx, KXx, KZx, L3x, L4x, L5x, L6x, L7x, L9x, LAx, LBx, LEx, LFx, M9x, MAx, MBx, MCx, MFx, MGx, MHx, MJx, MLx, MPx, MQx, MTx, MVx, MWx, MXx, MZx, Q4x, Q6x, Q7x, Q8x, R3x, R6x, R7x, R8x, R9x, RAx, RCx, RDx, REx, RHx, RJx, RMx, RNx, RPx, RTx, RUx, RWx, KDx, RQx, RSx, S2x, S3x, S4x, S6x, S7x • 1842-MUx, QDx, QFx	92P6573	*
	DVD/CD-RW combo drive, 12.7 mm, HLDS (GCC-4241N-IMJ0) • 1834-K7x, K8x, K9x, KAx, KBx, KFx, KJx, KLx, KNx, KSx, KTx, KUx, KVx, KWx, KXx, KZx, L3x, L4x, L5x, L6x, L7x, L9x, LAx, LBx, LEx, LFx, M9x, MAx, MBx, MCx, MFx, MGx, MHx, MJx, MLx, MPx, MQx, MTx, MVx, MWx, MXx, MZx, Q4x, Q6x, Q7x, Q8x, R3x, R6x, R7x, R8x, R9x, RAx, RCx, RDx, REx, RHx, RJx, RMx, RNx, RPx, RTx, RUx, RWx, KDx, RQx, RSx, S2x, S3x, S4x, S6x, S7x • 1842-MUx, QDx, QFx (continued)	92P6569	*

(continued)

No.	FRU	P/N	CRU ID
11	DVD/CD-RW combo drive, 12.7 mm, HLDS (GCC-4241N-IMJ0) • 1846-CTO, 53x, 55x, 58x, 59x, 5Ax, 5Cx, 5Ex, 5Gx, 5Jx, 5Mx, 5Px, 5Rx, 63x, 67x, 69x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Gx, 6Jx, 6Kx, 6Mx, 6Nx, 6Rx, 6Tx, 6Ux, 4Fx, 4Hx, 4Kx, 2Hx, 3Vx, 3Wx • 1847-CTO, 22x, 24x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Ex, 32x, 34x, 35x, 36x, 38x, 39x, 3Cx, 3Ex, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 3Nx, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 46x, 48x, 2Fx • 1848-CTO, 22x, 24x, 26x, 27x, 32x, 34x, 35x, 36x, 2Fx • 1849-CTO • 1850-22x • 1870-22x • 1846-CTO, 87x, 88x, 8Ax, A4x, A5x, 94x, 95x, 96x, 97x, 98x, 9Ax, 9Bx, 9Cx, 9Dx • 1847-CTO, 82x, 83x, 92x, 93x, 8Ex, 8Fx, 8Gx, 8Hx, AFx, 9Lx, 9Mx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 8Jx • 1848-CTO, 82x, 83x, 92x, 93x, 8Lx, 9Ux, 8Mx • 1849-CTO, 8Cx, 9Wx • 1858-CTO, 28x, 2Sx, 2Ux, 2Vx, 2Zx, 32x, 37x, 3Bx, 42x, 44x, 45x, 46x, 49x, 4Ax, 4Cx, 4Dx, 4Ex, 4Kx, 4Wx, 4Yx, 59x, 5Fx, 5Gx, 5Jx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 5Ux, 5Vx, 5Wx, 5Xx, 5Yx, 62x, 64x, 67x, 68x, 69x, 6Ax, 6Cx, 6Dx, 6Fx, 6Jx • 1859-CTO, 2Ax, 2Hx, 4Rx, 4Sx, 55x, 5Dx • 1860-CTO, 2Bx, 2Fx, 2Nx, 2Tx, 2Yx, 32x, 3Bx, 4Jx, 4Qx, 5Cx, 5Ex, 5Gx, 5Sx, 5Ux, 5Zx, 69x, 6Fx, 6Jx • 1861-CTO, 26x, 2Bx, 2Fx, 2Gx, 32x, 3Bx, 5Ex, 5Sx, 69x, 6Fx, 6Jx (continued)	92P6569	*

(continued)

No.	FRU	P/N	CRU ID
11	DVD/CD-RW combo drive, 12.7 mm, TEAC (DW-225) • 1846-CTO, 53x, 55x, 58x, 59x, 5Ax, 5Cx, 5Ex, 5Gx, 5Jx, 5Mx, 5Px, 5Rx, 63x, 67x, 69x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Gx, 6Jx, 6Kx, 6Mx, 6Nx, 6Rx, 6Tx, 6Ux, 4Fx, 4Hx, 4Kx, 2Hx, 3Vx, 3Wx • 1847-CTO, 22x, 24x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Ex, 32x, 34x, 35x, 36x, 38x, 39x, 3Cx, 3Ex, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 3Nx, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 46x, 48x, 2Fx • 1848-CTO, 22x, 24x, 26x, 27x, 32x, 34x, 35x, 36x, 2Fx • 1849-CTO • 1850-22x • 1870-22x • 1846-CTO, 87x, 88x, 8Ax, A4x, A5x, 94x, 95x, 96x, 97x, 98x, 9Ax, 9Bx, 9Cx, 9Dx • 1847-CTO, 82x, 83x, 92x, 93x, 8Ex, 8Fx, 8Gx, 8Hx, AFx, 9Lx, 9Mx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 8Jx • 1848-CTO, 82x, 83x, 92x, 93x, 8Lx, 9Ux, 8Mx • 1849-CTO, 8Cx, 9Wx • 1858-CTO, 28x, 2Sx, 2Ux, 2Vx, 2Zx, 32x, 37x, 3Bx, 42x, 44x, 45x, 46x, 49x, 4Ax, 4Cx, 4Dx, 4Ex, 4Kx, 4Wx, 4Yx, 59x, 5Fx, 5Gx, 5Jx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 5Ux, 5Vx, 5Wx, 5Xx, 5Yx, 62x, 64x, 67x, 68x, 69x, 6Ax, 6Cx, 6Dx, 6Fx, 6Jx • 1859-CTO, 2Ax, 2Hx, 4Rx, 4Sx, 55x, 5Dx • 1860-CTO, 2Bx, 2Fx, 2Nx, 2Tx, 2Yx, 32x, 3Bx, 4Jx, 4Qx, 5Cx, 5Ex, 5Gx, 5Sx, 5Ux, 5Zx, 69x, 6Fx, 6Jx • 1861-CTO, 26x, 2Bx, 2Fx, 2Gx, 32x, 3Bx, 5Ex, 5Sx, 69x, 6Fx, 6Jx (continued)	92P6563	*

(continued)

No.	FRU	P/N	CRU ID
11	DVD/CD-RW combo drive, 12.7 mm, TEAC (DW-225) • 1858-CTO, 93x, 94x, 98x, 99x, 9Ax, 9Dx, 9Fx, 9Gx, 9Hx, 9Kx, 9Lx, 9Mx, 9Sx, 9Tx, 9Ux, 9Vx, A2x, A3x, A4x, A5x, A6x, A8x, A9x, ABx, ACx, AGx, AHx, ALx, AMx, ANx, APx, AQx, ARx, AWx, AXx • 1859-CTO, B7x, B8x, B9x, BAx • 1860-CTO, BPx, 9Fx, 9Gx, BQx, BRx, BTx, BUx, BVx, BWx, BYx, BZx, C2x, C4x, C5x, C7x, C8x, C9x, CAx, CBx • 1861-CTO, 9Gx, BUx, BZx, C7x, C8x, C9x, CAx, CBx • 1862-CTO, 2Cx • 1863-CTO, 2Dx	92P6563	*
	DVD/CD-RW combo drive, 9.5 mm, PCC (UJDA775y) OP • 1846-CTO • 1847-CTO • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	13N6771	*
	DVD/CD-RW combo drive, 9.5 mm, PCC (UJDA765y) • 1846-CTO • 1847-CTO • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	39T2505	*
	DVD/CD-RW combo drive, 9.5 mm, Toshiba (SD-R9012) • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	92P5993	*

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No.	FRU	P/N	CRU ID
11	DVD/CD-RW combo drive, 9.5 mm, HLDS (GCC-4244N) • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Dx, 2Ex, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 33x, 35x, 36x, 37x, 39x, 3Ax, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Mx, 3Nx, 3Rx, 3Sx, 42x, 43x, 44x, 46x, 47x, 48x, 49x, 4Bx, 4Cx, 4Dx, 4Hx, 4Jx, 4Kx, 4Px, 4Sx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 52x, 55x, 57x, 59x, 5Ax, 5Bx, 5Cx, 5Dx, 5Lx, 5Rx, 5Sx • 1844-5Gx, 5Hx, 5Jx • 1845-5Kx	39T2668	*
	DVD/CD-RW combo drive, 9.5 mm, PCC (UJDA770) • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Dx, 2Ex, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 33x, 35x, 36x, 37x, 39x, 3Ax, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Mx, 3Nx, 3Rx, 3Sx, 42x, 43x, 44x, 46x, 47x, 48x, 49x, 4Bx, 4Cx, 4Dx, 4Hx, 4Jx, 4Kx, 4Px, 4Sx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 52x, 55x, 57x, 59x, 5Ax, 5Bx, 5Cx, 5Dx, 5Lx, 5Rx, 5Sx • 1844-5Gx, 5Hx, 5Jx • 1845-5Kx	39T2666	*

(continued)

No.	FRU	P/N	CRU ID
11	DVD-RAM/RW drive, 12.7 mm • 1834-LCx, MSx, MRx, Q2x, Q3x, QAx, R2x, RBx, RFx, RGx, RXx, S5x, S9x, • 1842-QEx • 1843-2Ax, 2Bx, 2Cx, 3Lx, 4Ax, 4Ex, 4Fx, 4Gx, 4Lx, 4Mx, 4Nx, 4Zx, 53x, 54x, 58x, 5Mx, 5Nx, 5Px, 5Qx • 1846-CTO, 54x, 5Nx, 5Qx, 64x, 65x, 66x, 68x, 6Px, 6Qx, 6Sx, 4Cx, 4Dx, 4Ex, 4Gx, 4Jx, 4Lx, 4Mx, 4Nx, 2Jx • 1847-CTO, 25x, 37x, 42x, 43x, 44x, 45x, 47x, 49x, 4Ax, 2Gx, 4Bx • 1848-CTO, 25x, 37x, 42x, 43x, 44x, 45x, 2Gx, 4Bx • 1849-CTO, 4Qx • 1846-89x, 8Bx, A2x, A3x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, 99x, 9Ex, 9Fx, 9Gx, 9Hx • 1847-AEx, AGx, AHx, 9Nx, 8Kx, AJx • 1848-AKx, 9Vx, 8Nx, ALx • 1849-8Dx, ADx • 1858-CTO, 3Cx, 3Dx, 47x, 4Fx, 4Gx, 4Lx, 4Mx, 4Nx, 65x, 6Bx, 6Ex, 6Hx, 6Kx, 6Mx, 6Px, 6Sx, 6Ux • 1860-CTO, 3Ex, 4Mx, 6Gx • 1861-CTO, 3Ex, 4Mx, 6Gx • 1858-CTO, 95x, 96x, 9Wx, 9Xx, 9Yx, 9Zx, A7x, AAx, ADx, AEx, AFx, AJx, AKx, ASx, ATx, AUx, AVx, AYx • 1860-CTO, BXx		
	HLDS (GSA-4080N)	39T2503	*
	PCC (UJ-830B)	13N6827	*
	DVD-RAM/RW drive, 9.5 mm, PCC (UJ-822B, UJ822Z) • 1846-CTO • 1847-CTO • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	39T2507	*
	Travel bezel • Supported by CTO	13N5354	*
	For optional Ultrabay Enhanced devices, see “Optional FRUs” on page 259. For R52 series, the optical drive is a Tier 1 CRU. For R50e series, the optical drive is a Tier 2 CRU.		

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No.	FRU	P/N	CRU ID
12	Hard disk drive, 30 GB, 9.5 mm, 4,200 rpm • 1834-K3x, K4x, K5x, K6x, K7x, K8x, K9x, KAx, KBx, KGx, KLx, KPx, KQx, KRx, KSx, KTx, KUx, KVx, KWx, KXx, L2x, L3x, L4x, L7x, LGx, LHx, M2x, M3x, M4x, M5x, M6x, MBx, MRx, MSx, R3x, RKx • 1846-CTO, 5Kx, 6Hx • 1847-CTO • 1848-CTO • 1858-CTO, 29x, 2Ex, 53x, 5Qx • 1859-CTO, 2Ax, 55x • 1860-CTO, 2Lx • 1861-CTO		
	Fujitsu	13N6903	*
	HGST	13N6883	*
	Hard disk drive, 40 GB, 9.5 mm, 4,200 rpm • 1834-KCx, KDx, KEx, KFx, KYx, KZx, L5x, L6x, L8x, L9x, LAx, LBx, LCx, LFx, M7x, M8x, M9x, MAx, MCx, MDx, MEx, MFx, MGx, MHx, MMx, MNx, MPx, MQx, MTx, MVx, MWx, MXx, R4x, R5x, R6x, R7x, R8x, R9x, RAx, RBx, RHx, RTx, RVx, RWx, RXx • 1842-MUx, QDx, QFx • 1843-2Fx, 2Xx, 33x, 34x, 3Ax, 3Bx, 3Gx, 3Nx, 3Xx, 4Px, 4Sx, 59x • 1844-5Fx, 5Gx, 5Jx • 1846-CTO, 52x, 53x, 58x, 59x, 62x, 6Cx, 6Dx, 2Hx, 3Vx • 1847-CTO, 22x, 23x, 24x, 28x, 29x, 2Ax, 2Dx, 2Ex, 33x, 34x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Nx, 3Px, 42x, 46x, 2Fx • 1848-CTO, 22x, 23x, 24x, 33x, 34x, 42x, 2Fx • 1849-CTO, 5Ux • 1850-22x • 1870-22x • 1858-CTO, 22x, 28x, 2Px, 4Ux, 4Yx, 5Lx, 5Tx, 5Rx • 1859-CTO • 1860-CTO, 25x, 2Bx, 2Fx, 2Mx, 2Nx, 2Tx, 2Yx, 5Bx, 5Cx, 5Sx • 1861-CTO, 25x, 26x, 2Bx, 2Fx, 2Gx, 5Sx		
	Fujitsu	13N6905	*
	HGST	13N6885	*

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No.	FRU	P/N	CRU ID
12	Hard disk drive, 40 GB, 9.5 mm, 5,400 rpm, HGST R • 1834-KHx, KJx, Q2x, Q4x, Q5x, Q7x, Q8x, Q9x, QAx, QBx, QCx, RMx, RNx, RPx, RQx, RUx, S2x, S3x, S4x, S5x, S6x, S7x • 1843-22x, 23x, 24x, 25x, 26x, 27x, 28x, 2Dx, 2Ex, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Yx, 2Zx, 32x, 35x, 36x, 37x, 3Cx, 3Dx, 3Ex, 3Fx, 3Hx, 3Jx, 3Kx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Yx, 3Zx, 42x, 43x, 44x, 47x, 48x, 49x, 4Ax, 4Hx, 4Jx, 4Qx, 4Rx, 4Sx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 5Ax, 5Rx, 5Sx, 5Tx, 5Ux • 1845-5Kx • 1846-CTO, 56x, 57x, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Hx, 5Jx, 5Lx, 6Ax, 6Bx, 6Fx, 6Gx, 6Jx, 6Kx, 6Lx, 6Mx, 6Nx, 6Tx, 6Ux • 1847-CTO, 32x, 3Mx, 3Qx, 3Rx, 3Sx, 3Ux • 1848-CTO, 32x • 1849-CTO • 1846-84x, 85x, 86x, 87x, 96x, 9Ax, 9Bx, 9Cx • 1847-82x, 83x, 8Fx, 9Lx, 9Mx, 9Qx, 8Jx • 1848-82x, 83x, 9Ux, 8Mx • 1849-8Cx • 1858-CTO, 2Qx, 2Rx, 2Sx, 2Ux, 2Vx, 2Wx, 2Xx, 2Zx, 32x, 33x, 34x, 37x, 38x, 3Bx, 3Cx, 4Tx, 5Mx, 5Nx, 5Ux, 5Vx, 5Xx, 5Yx, 67x, 68x, 69x, 6Ax, 6Cx, 6Dx, 6Ex • 1859-CTO, 2Hx, 5Dx • 1860-CTO, 2Fx, 2Kx, 2Mx, 2Nx, 32x, 3Bx, 4Jx, 56x, 5Ex, 5Ux, 5Zx, 69x • 1861-CTO, 2Kx, 32x, 3Bx, 56x, 5Ex, 69x • 1858-92x, 93x, 94x, 97x, 98x, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx, 9Jx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Wx, 9Xx, A4x, A5x, A6x, A8x, AGx, AHx, CCx • 1859-B6x, B7x, B9x • 1860-BPx, 9Fx, 9Gx, BQx, BRx, BSx, BTx, BUx, BYx, BZx, C2x, C3x, C4x, C6x, C7x, C8x, C9x, CAx, CBx • 1861-9Gx, BUx, BZx, C6x, C7x, C8x, C9x, CAx, CBx	39T2521	*

(continued)

No.	FRU	P/N	CRU ID
12	Hard disk drive, 40 GB, 9.5 mm, 5,400 rpm, Toshiba • 1846-CTO, 56x, 57x, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Hx, 5Jx, 5Lx, 6Ax, 6Bx, 6Fx, 6Gx, 6Jx, 6Kx, 6Lx, 6Mx, 6Nx, 6Tx, 6Ux • 1847-CTO, 32x, 3Mx, 3Qx, 3Rx, 3Sx, 3Ux • 1848-CTO • 1849-CTO • 1846-84x, 85x, 86x, 87x, 96x, 9Ax, 9Bx, 9Cx • 1847-82x, 83x, 8Fx, 9Lx, 9Mx, 9Qx, 8Jx • 1848-82x, 83x, 9Ux, 8Mx • 1849-8Cx • 1858-CTO, 2Qx, 2Rx, 2Sx, 2Ux, 2Vx, 2Wx, 2Xx, 2Zx, 32x, 33x, 34x, 37x, 38x, 3Bx, 3Cx, 4Tx, 5Mx, 5Nx, 5Ux, 5Vx, 5Xx, 5Yx, 67x, 68x, 69x, 6Ax, 6Cx, 6Dx, 6Ex • 1859-CTO, 2Hx, 5Dx • 1860-CTO, 2Fx, 2Kx, 2Mx, 2Nx, 32x, 3Bx, 4Jx, 56x, 5Ex, 5Ux, 5Zx, 69x • 1861-CTO, 2Kx, 32x, 3Bx, 56x, 5Ex, 69x • 1858-92x, 93x, 94x, 97x, 98x, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx, 9Jx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Wx, 9Xx, A4x, A5x, A6x, A8x, AGx, AHx, CCx • 1859-B6x, B7x, B9x • 1860-BPx, 9Fx, 9Gx, BQx, BRx, BSx, BTx, BUx, BYx, BZx, C2x, C3x, C4x, C6x, C7x, C8x, C9x, CAx, CBx • 1861-9Gx, BUx, BZx, C6x, C7x, C8x, C9x, CAx, CBx • 1843-22x, 23x, 24x, 25x, 26x, 27x, 28x, 2Dx, 2Ex, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Yx, 2Zx, 32x, 35x, 36x, 37x, 3Cx, 3Dx, 3Ex, 3Fx, 3Hx, 3Jx, 3Kx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Yx, 3Zx, 42x, 43x, 44x, 47x, 48x, 49x, 4Ax, 4Hx, 4Jx, 4Qx, 4Rx, 4Sx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 5Ax, 5Rx, 5Sx, 5Tx, 5Ux • 1845-5Kx	13N6919	*

(continued)

No.	FRU	P/N	CRU ID
12	Hard disk drive, 40 GB, 9.5 mm, 5,400 rpm, Fujitsu • 1846-CTO, 56x, 57x, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Hx, 5Jx, 5Lx, 6Ax, 6Bx, 6Fx, 6Gx, 6Jx, 6Kx, 6Lx, 6Mx, 6Nx, 6Tx, 6Ux • 1847-CTO, 32x, 3Mx, 3Qx, 3Rx, 3Sx, 3Ux • 1848-CTO • 1849-CTO	13N6913	*
	Hard disk drive, 40 GB, 9.5 mm, 5,400 rpm, Fujitsu • 1846-CTO, 84x, 85x, 86x, 87x, 96x, 9Ax, 9Bx, 9Cx • 1847-CTO, 82x, 83x, 8Fx, 9Lx, 9Mx, 9Qx, 8Jx • 1848-CTO, 82x, 83x, 9Ux, 8Mx • 1849-CTO, 8Cx • 1858-CTO, 92x, 93x, 94x, 97x, 98x, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx, 9Jx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Wx, 9Xx, A4x, A5x, A6x, A8x, AGx, AHx, CCx • 1859-CTO, B6x, B7x, B9x • 1860-CTO, BPx, 9Fx, 9Gx, BQx, BRx, BSx, BTx, BUx, BYx, BZx, C2x, C3x, C4x, C6x, C7x, C8x, C9x, CAx, CBx • 1861-CTO, 9Gx, BUx, BZx, C6x, C7x, C8x, C9x, CAx, CBx • 1843-22x, 23x, 24x, 25x, 26x, 27x, 28x, 2Dx, 2Ex, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Yx, 2Zx, 32x, 35x, 36x, 37x, 3Cx, 3Dx, 3Ex, 3Fx, 3Hx, 3Jx, 3Kx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Yx, 3Zx, 42x, 43x, 44x, 47x, 48x, 49x, 4Ax, 4Hx, 4Jx, 4Qx, 4Rx, 4Sx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 5Ax, 5Rx, 5Sx, 5Tx, 5Ux • 1845-5Kx	39T2549	*

(continued)

No.	FRU	P/N	CRU ID
12	Hard disk drive, 60 GB, 9.5 mm, 4,200 rpm • 1834-LDx, LEx, MJx, RCx, RDx, REx, RFx, RGx, RJx • 1846-CTO, 5Ax, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 6Ex, 6Px, 6Qx, 6Sx, 4Fx, 2Jx, 3Wx • 1847-CTO, 2Bx, 2Cx, 3Dx, 3Ex, 3Gx, 3Hx, 3Jx, 49x, 4Ax, 2Gx, 4Bx • 1848-CTO, 2Gx, 4Bx • 1849-CTO • 1858-CTO, 3Dx, 42x, 44x, 45x, 46x, 47x, 49x, 4Ax, 4Cx, 4Dx, 4Ex, 4Fx, 4Kx, 4vx, 4Wx, 54x, 59x, 5Ax, 5Fx, 5Gx, 5Hx, 5Jx, 5Wx, 62x, 64x, 6Fx, 6Jx, 6Kx • 1859-CTO, 4Rx • 1860-CTO, 3Ex, 57x, 58x, 5Gx, 5Hx, 6Fx, 6Gx, 6Jx • 1861-CTO, 3Ex, 6Fx, 6Gx, 6Jx		
	HGST	13N6887	*
	Fujitsu	13N6907	*
	Hard disk drive, 60 GB, 9.5 mm, 5,400 rpm, Fujitsu • 1846-CTO, 54x, 63x, 64x, 66x, 67x, 6Rx, 4Cx, 4Hx, 4Kx • 1847-CTO, 25x, 26x, 35x, 3Fx, 43x, 44x, 48x • 1848-CTO, 25x, 26x, 35x, 43x, 44x • 1849-CTO • 1858-CTO, 6Bxx, 6Hxx • 1859-CTO • 1860-CTO • 1861-CTO	13N6915	*

(continued)

No.	FRU	P/N	CRU ID
12	Hard disk drive, 60 GB, 9.5 mm, 5,400 rpm, HGST • 1843-29x, 2Bx, 2Cx, 3Lx, 3Mx, 4Bx, 4Cx, 4Dx, 4Ex, 4Fx, 4Kx, 4Lx, 4Mx, 52x, 53x, 54x, 55x, 5Bx, 5Cx, 5Dx, 5Lx, 5Mx, 5Nx, 5Px, 5Qx • 1844-5Hx • 1846-CTO, 54x, 63x, 64x, 66x, 67x, 6Rx, 4Cx, 4Hx, 4Kx • 1847-CTO, 25x, 26x, 35x, 3Fx, 43x, 44x, 48x • 1848-CTO, 25x, 26x, 35x, 43x, 44x • 1849-CTO • 1846-88x, 89x, 8Ax, 8Bx, A4x, A9x, 94x, 95x, 97x, 98x, 9Ex, 9Fx, 9Hx • 1847-92x, 93x, 8Ex, 8Gx, 8Hx, AEx, AFx, 9Nx, 9Px, 9Rx, 9Sx, 9Tx, 8Kx, AJx • 1848-92x, 93x, 8Lx, 8Nx, ALx • 1849-8Dx, 9Wx • 1858-CTO, 6Bxx, 6Hxx • 1859-CTO • 1860-CTO • 1861-CTO • 1858-CTO, 95x, 96x, 99x, 9Ax, 9Kx, 9Lx, 9Ux, 9Vx, 9Yx, 9Zx, A2x, A7x, A9x, ABx, ACx, ADx, AEx, ALx, AMx, ANx, APx, ASx, ATx, AWx • 1859-CTO, B8x, BAx • 1860-CTO, BWx, BXx, C5x	39T2523	*
	Hard disk drive, 60 GB, 9.5 mm, 5,400 rpm, Fujitsu • 1843-29x, 2Bx, 2Cx, 3Lx, 3Mx, 4Bx, 4Cx, 4Dx, 4Ex, 4Fx, 4Kx, 4Lx, 4Mx, 52x, 53x, 54x, 55x, 5Bx, 5Cx, 5Dx, 5Lx, 5Mx, 5Nx, 5Px, 5Qx • 1844-5Hx • 1846-CTO, 88x, 89x, 8Ax, 8Bx, A4x, A9x, 94x, 95x, 97x, 98x, 9Ex, 9Fx, 9Hx • 1847-CTO, 92x, 93x, 8Ex, 8Gx, 8Hx, AEx, AFx, 9Nx, 9Px, 9Rx, 9Sx, 9Tx, 8Kx, AJx • 1848-CTO, 92x, 93x, 8Lx, 8Nx, ALx • 1849-CTO, 8Dx, 9Wx • 1858-CTO, 95x, 96x, 99x, 9Ax, 9Kx, 9Lx, 9Ux, 9Vx, 9Yx, 9Zx, A2x, A7x, A9x, ABx, ACx, ADx, AEx, ALx, AMx, ANx, APx, ASx, ATx, AWx • 1859-CTO, B8x, BAx • 1860-CTO, BWx, BXx, C5x	39T2551	*

(continued)

No.	FRU	P/N	CRU ID
12	Hard disk drive, 80 GB, 9.5 mm, 4,200 rpm • 1846-CTO, 55x, 65x, 68x, 69x, 4Dx, 4Ex, 4Gx, 4Lx • 1847-CTO, 27x, 36x, 37x, 3Kx, 3Lx, 3Tx, 45x, 47x • 1848-CTO, 27x, 36x, 37x, 45x • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO		
	HGST	13N6889	*
	Fujitsu	13N6909	*
	Hard disk drive, 80 GB, 9.5 mm, 5,400 rpm, Fujitsu • 1846-CTO, 4Jx, 4Mx, 4Nx • 1847-CTO • 1848-CTO • 1849-CTO, 4Qx • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	13N6917	*
	Hard disk drive, 80 GB, 9.5 mm, 5,400 rpm, HGST • 1843-2Ax, 4Gx, 4Nx, 5Ex • 1844-CTO • 1845-CTO • 1846-CTO, 4Jx, 4Mx, 4Nx • 1847-CTO • 1848-CTO • 1849-CTO, 4Qx • 1846-99x, 9Dx, 9Gx, A2x, A5x, A6x, A7x, AAx, ABx • 1847-AGx, AHx • 1848-9Vx • 1849-ADx • 1858-CTO, 9Mx, A3x, AAx, AFx, AQx, ARx, AUx, AVx, AXx, AYx • 1859-CTO • 1860-CTO, BVx • 1861-CTO	39T2525	*

(continued)

No.	FRU	P/N	CRU ID
12	Hard disk drive, 80 GB, 9.5 mm, 5,400 rpm • 1843-2Ax, 4Gx, 4Nx, 5Ex • 1844-CTO • 1845-CTO • 1846-99x, 9Dx, 9Gx, A2x, A5x, A6x, A7x, AAx, ABx • 1847-AGx, AHx • 1848-9Vx • 1849-ADx • 1858-CTO, 9Mx, A3x, AAx, AFx, AQx, ARx, AUx, AVx, AXx, AYx • 1859-CTO • 1860-CTO, BVx • 1861-CTO		
	Fujitsu	39T2553	*
	Toshiba	39T2557	*
	Hard disk drive, 80 GB, 9.5 mm, 7,200 rpm, HGST • 1846-CTO • 1847-CTO • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	39T2583	*
	Hard disk drive, 100 GB, 9.5 mm, 5,400 rpm • 1846-CTO, A3x, A8x, ACx • 1847-CTO • 1848-CTO, AKx • 1849-CTO • 1858-CTO, AJx, AKx • 1859-CTO • 1860-CTO • 1861-CTO • 1862-CTO • 1863-CTO		
	Toshiba	39T2555	*
	Fujitsu	39T2559	*

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No.	FRU	P/N	CRU ID
13	Cover, hard disk drive for models with 14.1-in. LCD • 1834-Kxx, Lxx, Q4x, Q5x, Q8x, Q9x, QBx, QCx • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 5Lx • 1844-5Fx, 5Jx • 1846-CTO, 2xx, 5xx • 1847-CTO, 2xx, 5xx • 1848-CTO, 2xx, 5xx • 1849-CTO, 2xx, 5xx • 1846-CTO, 84x, 85x, 86x. 87x, 88x, 89x, 8Ax, 8Bx • 1847-CTO, 82x, 83x, 8Ex, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx • 1848-CTO, 82x, 83x, 8Lx, 8Mx, 8Nx • 1849-CTO, 8Cx, 8Dx, 8Px, 8Qx, 8Rx, 8Sx, 8Tx • 1858-CTO, 2xx, 3xx • 1859-CTO, 2xx, 3xx • 1860-CTO, 2xx, 3xx • 1861-CTO, 2xx, 3xx • 1858-92x, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, CCx • 1859-B6x, B7x, B8x, BBx, BCx, BDx, BEx • 1860-BPx, 9Fx, 9Gx, BQx, BRx, BSx, C6x, C7x, C8x, C9x • 1861-9Gx, C6x, C7x, C8x, C9x • 1862-2Cx • 1863-2Dx	13N5189	*

(continued)

No.	FRU	P/N	CRU ID
13	Cover, hard disk drive for models with 15.1-in. LCD • 1834-Mxx, Q2x, Q3x, Q6x, Q7x, QAx, Rxx, Sxx • 1842-Mxx, Qxx • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx • 1844-5Gx, 5Hx • 1845-5Kx • 1846-CTO, 3xx, 4xx, 6xx • 1847-CTO, 3xx, 4xx, 6xx • 1848-CTO, 3xx, 4xx, 6xx • 1849-CTO, 3xx, 4xx, 6xx • 1846-A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Cx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx • 1847-AEx, AFx, AGx, AHx, AJx, 92x, 93x, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx • 1848-AKx, ALx, 92x, 93x, 9Ux, 9Vx • 1849-ADx, AMx, ANx, APx, 9Wx, 9Xx, 9Yx, 9Zx, 91x • 1858-CTO, 4xx, 5xx, 6xx • 1859-CTO, 4xx, 5xx, 6xx • 1860-CTO, 4xx, 5xx, 6xx • 1861-CTO, 4xx, 5xx, 6xx • 1858-9Hx, 9Jx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AGx, AHx, AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B2x, B3x, B4x, B5x • 1859-B9x, BAx, BFx, BGx, BHx, BJx, BKx, BLx, BMx • 1860-BTx, BUx, BVx, BWx, BXx, BYx, BZx, C2x, C3x, C4x, C5x, CAx, CBx • 1861-BUx, BZx, CAx, CBx	13N5190	*

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No.	FRU	P/N	CRU ID
14	Cover, DIMM slot	13N5188	*
15	Speaker assembly (monaural) (for R50e, R51e)	93P4720	N
	Speaker assembly (for R52)	39T0801	N
16	Backup battery	02K7078	N
17	Intel PRO Wireless 2200BG Mini-PCI Adapter		
	• 1834-KGx, KHx, KJx, KLx, KPx, KQx, KRx, KSx, KTx, KUx, KVx, KWx, KXx, KZx, KYx, L2x, L3x, L4x, L5x, L6x, L7x, L8x, L9x, LAx, LBx, LCx, LDx, LEx, LFx, MJx, MMx, MNx, MPx, MQx, MTx, MVx, MWx, MXx, Q2x, Q3x, Q4x, Q6x, Q7x, Q8x, R3x, R4x, R5x, R6x, R7x, R8x, R9x, RAx, RBx, RCx, RDx, RFx, RGx, RHx, RJx, RMx, RNx, RPx, RQx, RRx, RSx, RTx, S5x, S6x, S7x, S8x, S9x (only for xxU, xxF, xxV) • 1842-MUx, QDx, QEx, QFx (only for xxU, xxF, xxV) • 1858-CTO, 28x, 2Rx, 2Sx, 2Qx, 2Ux, 2Vx, 2Wx, 2Xx, 2Zx, 32x, 33x, 34x, 37x, 38x, 3Bx, 3Cx, 3Dx, 42x, 44x, 49x, 4Dx, 4Gx, 4Kx, 4Lx, 4Tx, 4Vx, 4Wx, 4Yx, 54x, 59x, 5Ax, 5Fx, 5Gx, 5Hx, 5Jx, 5Nx, 5Rx, 5Ux, 5Vx, 5Xx, 64x, 67x, 69x (only for xxU, xxF, xxV) • 1860-CTO, 25x, 2Bx, 2Fx, 2Tx, 32x, 3Bx, 4Jx, 57x, 58x, 5Ex, 5Gx, 5Hx, 5Kx, 5Ux, 5Zx, 69x (only for xxU, xxF, xxV) • 1861-CTO, 25x, 26x, 2Bx, 2Fx, 32x, 3Bx, 5Ex, 69x (only for xxU, xxF, xxV)	93P3483	N

(continued)

No.	FRU	P/N	CRU ID
17	Intel PRO Wireless 2200BG Mini-PCI Adapter		
	• 1834-KGx, KHx, KJx, KLx, KPx, KQx, KRx, KSx, KTx, KUx, KVx, KWx, KXx, KZx, KYx, L2x, L3x, L4x, L5x, L6x, L7x, L8x, L9x, LAx, LBx, LCx, LDx, LEx, LFx, MJx, MMx, MNx, MPx, MQx, MTx, MVx, MWx, MXx, Q2x, Q3x, Q4x, Q6x, Q7x, Q8x, R3x, R4x, R5x, R6x, R7x, R8x, R9x, RAx, RBx, RCx, RDx, RFx, RGx, RHx, RJx, RMx, RNx, RPx, RQx, RRx, RSx, RTx, S5x, S6x, S7x, S8x, S9x (except xxU, xxF, xxV) • 1842-MUx, QDx, QEx, QFx (except xxU, xxF, xxV) • 1858-CTO, 28x, 2Rx, 2Sx, 2Qx, 2Ux, 2Vx, 2Wx, 2Xx, 2Zx, 32x, 33x, 34x, 37x, 38x, 3Bx, 3Cx, 3Dx, 42x, 44x, 49x, 4Dx, 4Gx, 4Kx, 4Lx, 4Tx, 4Vx, 4Wx, 4Yx, 54x, 59x, 5Ax, 5Fx, 5Gx, 5Hx, 5Jx, 5Nx, 5Rx, 5Ux, 5Vx, 5Xx, 64x, 67x, 69x (except for xxU, xxF, xxV) • 1860-CTO, 25x, 2Bx, 2Fx, 2Tx, 32x, 3Bx, 4Jx, 57x, 58x, 5Ex, 5Gx, 5Hx, 5Kx, 5Ux, 5Zx, 69x (except for xxU, xxF, xxV) • 1861-CTO, 25x, 26x, 2Bx, 2Fx, 32x, 3Bx, 5Ex, 69x (except for xxU, xxF, xxV)	93P3485	N

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No.	FRU	P/N	CRU ID
17	Intel PRO Wireless 2200BG Mini-PCI Adapter		
	• 1846-CTO, 6DU, 6EU, 59F, 6DF, 6EF, 59U • 1847-CTO, 22U, 32U, 3CU, 3JU, 3TU, 48U, 22F, 2CF, 32F, 3CF, 3TF, 48F • 1848-CTO, 22U, 22F, 32U, 32F • 1849-CTO, 5SF, 5SU, 5FU, 5TU, 5UU, 6VF, 6VU, 4PF, 4PU, 4FU, 4RU • 1850-CTO, 22F, 22F, 22V • 1870-CTO, 22F, 22F, 22V • 1846-96x, 9Ax, 9Bx, 9Cx (only for xxUx, xxFx, xxV) • 1847-82x, 83x, 92x, 93x (only for xxUx, xxFx, xxV) • 1848-82x, 83x, 92x, 93x, 9Ux (only for xxUx, xxFx, xxV) • 1849-8Cx, 9Wx (only for xxUx, xxFx, xxV) • 1858-CTO, 92x, 93x, 94x, 97x, 98x, 99x, 9Ax, 9Fx, 9Gx, 9Hx, 9Jx, 9Kx, 9Lx, 9Mx, A2x, A3x, A6x, ABx, ACx, AGx, AHx (only for xxUx, xxFx, xxV) • 1859-CTO, B7x, B8x, B9x, BAx (only for xxUx, xxFx, xxV) • 1860-CTO, BPx, 9Fx, 9Gx, BUx, BWx, BYx, BZx, C6x, C7x (only for xxUx, xxFx, xxV) • 1861-CTO, 9Gx, BUx, BZx, C6x, C7x (only for xxUx, xxFx, xxV) • 1862-CTO (only for xxUx, xxFx, xxV) • 1863-CTO (only for xxUx, xxFx, xxV)	39T0077	N

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No.	FRU	P/N	CRU ID
17	Intel PRO Wireless 2200BG Mini-PCI Adapter		
	• 1846-CTO, 53x, 54x, 56x, 57x, 58x, 59x, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Jx, 5Lx, 5Mx, 5Nx, 63x, 67x, 69x, 6Cx, 6Dx, 6Ex, 6Fx, 6Gx, 6Jx, 6Kx, 6Mx, 6Nx, 6Rx (except for xxUx, xxFx, xxV) • 1847-CTO, 22x, 24x, 25x, 26x, 27x, 2Ax, 2Cx, 32x, 35x, 36x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 3Qx, 3Rx, 3Tx, 3Ux, 48x, 49x, 4Ax (except for xxUx, xxFx, xxV) • 1848-CTO, 22x, 24x, 25x, 26x, 27x, 32x, 35x, 36x (except for xxUx, xxFx, xxV) • 1849-CTO, 5Ux (except for xxUx, xxFx, xxV) • 1850-CTO, 22x (except for xxUx, xxFx, xxV) • 1870-CTO, 22x (except for xxUx, xxFx, xxV) • 1846-84x, 85x, 86x, 87x, 88x, 89x, 8Ax, 8Bx, 94x, 95x, 97x, 98x, 9Cx, 9Dx, 9Fx (except for xxUx, xxFx, xxV) • 1847-82x, 83x, 92x, 93x, AEx, AHx, 9Lx, 9Mx, 9Rx (except for xxUx, xxFx, xxV) • 1848-82x, 83x, 92x, 93x, 9Ux (except for xxUx, xxFx, xxV) • 1849-8Cx, 9Wx (except for xxUx, xxFx, xxV) • 1858-CTO, 92x, 93x, 94x, 97x, 98x, 99x, 9Ax, 9Fx, 9Gx, 9Hx, 9Jx, 9Kx, 9Lx, 9Mx, A2x, A3x, A6x, ABx, ACx, AGx, AHx (except for xxUx, xxFx, xxV) • 1859-CTO, B7x, B8x, B9x, BAx (except for xxUx, xxFx, xxV) • 1860-CTO, BPx, 9Fx, 9Gx, BUx, BWx, BYx, BZx, C6x, C7x (except for xxUx, xxFx, xxV) • 1861-CTO, 9Gx, BUx, BZx, C6x, C7x (except for xxUx, xxFx, xxV) • 1862-CTO (except for xxUx, xxFx, xxV) • 1863-CTO (except for xxUx, xxFx, xxV)	39T0079	N

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No.	FRU	P/N	CRU ID
17	ThinkPad 11b/g Wireless LAN Mini PCI Adapter		
	• 1846-CTO, 6AV, 6BV • 1847-CTO, 28U, 29U, 2BU, 2DV, 2FU, 2GU, 38U, 39U, 3PV, 3SF, 3SU, 43V, 46U, 4BU • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	93P3475	N
	• 1846-CTO • 1847-CTO, 34G, 37G, 42G, 43G, 44G, 45G • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	93P3477	

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No.	FRU	P/N	CRU ID
17	ThinkPad 11b/g Wireless LAN Mini PCI Adapter		
	• 1843-35U, 3CU, 3GU, 3HU, 3MU, 42U, 47U, 4SU, 5BU, 3GF, 3MF, 5BF, 36V, 3EV, 3FV, 3GV, 3JV, 3MV • 1844-5Gx, 5Hx (only for xxU, xxV) • 1845-5Kx (only for xxU, xxV) • 1846-CTO, 6AV, 6BV • 1847-CTO, 28U, 29U, 2BU, 38U, 39U, 46U, 2FU, 2GU, 4BU, 3SU, 3SF, 2DV, 3PV, 43V • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	39T0073	N
	• 1843-3GL, 3ML, 5BF, 3GL, 3ML, 4PL, 55L, 3GP, 3MP, 4PP, 55P, 3GS, 3MS, 4PS, 55S, 3GY, 3MY, 4PY, 55Y, 3GG, 3MG, 5DG, 36M, 3GM, 3MM, 37Q, 3EQ, 3GQ, 3JQ, 3MQ, 4TQ, 5AQ, 37A, 3EA, 3GA, 3JA, 3MA, 4TA, 5AA, 3EB, 3FB, 3HB, 3LB, 5LB, 3EH, 3FH, 3HH, 3LH, 5LH, 33C, 34C, 36C, 37C, 3AC, 3BC, 3GC, 3JC, 3KC, 3LC, 3MC, 3XC, 4TC, 4UC, 4YC, 3GE, 3ME, 3YJ, 3ZJ, 43J, 44J, 4QJ, 4RJ, 4WJ, 4XJ, 53J, 54J, 3EK, 3GK, 3MK, 3XK, 4DK • 1844-5Gx, 5Hx (only for xxG, xxE, xxJ) • 1845-5Kx (only for xxG, xxE, xxJ) • 1846-CTO • 1847-CTO, 34G, 37G, 42G, 43G, 44G, 45G • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	39T0075	N

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No.	FRU	P/N	CRU ID
17	ThinkPad 11a/b/g Wireless LAN Mini PCI Adapter II		
	• 1834-QAx, REx, RUx, RWx, RXx (only for xxB, xxFx, xxH, xxM, xxP, xxU)	93P4262	N
	• 1846-CTO • 1847-CTO • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO • 1843-59U, 48M, 49M, 4AM, 4BM, 4CM, 4EM, 4FM, 4GM, 4HM, 4JM, 4KM, 4LM, 4MM, 4NM, 4VM, 4ZM, 59M, 59A, 59C • 1844-CTO • 1845-CTO	39T0081	N
	• 1834-QAx, REx, RUx, RWx, RXx (only for xxG)	93P4264	N
	• 1846-CTO • 1847-CTO • 1848-CTO, 8Lx, AKx • 1849-CTO • 1858-CTO, 9Dx • 1859-CTO, 9Dx • 1860-CTO, 9Dx • 1861-CTO, 9Dx • 1843-59F, 59L, 59P, 59S, 59Y, 25G, 26G, 27G, 28G, 29G, 2AG, 2BG, 2CG, 2DG, 2EG, 3DG, 59G, 5EG, 59Q, 52K, 59K, 5CK • 1844-CTO • 1845-CTO	39T0083	N

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No.	FRU	P/N	CRU ID
17	ThinkPad 11a/b/g Wireless LAN Mini PCI Adapter II		
	• 1834-QAx, REx, RUx, RWx, RXx (only for xxV) • 1843-59V • 1844-CTO • 1845-CTO • 1846-CTO • 1847-CTO • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	27K9997	N
	• 1834-QAx, REx, RUx, RWx, RXx (only for xxJ) • 1843-59E • 1844-CTO • 1845-CTO • 1846-CTO • 1847-CTO • 1848-CTO • 1849-CTO • 1858-CTO • 1859-CTO • 1860-CTO • 1861-CTO	93P4266	N

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No.	FRU	P/N	CRU ID
17	Intel PRO Wireless 2915ABG Mini-PCI Adapter		
	• 1846-CTO, 2HU, 2JU, 3VU, 3WU, 5AU, 6LU, 6QU, 6TU, 5AF, 6LF, 6QF, 6TF • 1847-CTO, 28x, 29x, 2Bx, 2Dx, 38x, 39x, 3Nx, 3Px, 3Sx, 43x, 46x, 2Fx, 2Gx, 4Bx • 1848-CTO, 2FU, 2GU, 4BU • 1849-CTO, 4Qx • 1846-CTO • 1847-CTO, 8Ex, 8Fx, 8Gx, 8Hx, AFx, AGx, 9Px, 9Qx, 9Sx, 9Tx, 8Jx, 8Kx, AJx • 1848-CTO, 8Mx, 8Nx, ALx • 1849-CTO, 8Dx, ADx • 1858-CTO, 45x, 46x, 47x, 4Ax, 4Cx, 4Ex, 4Fx, 4Mx, 4Nx, 5Mx, 5Px, 5Qx, 5Wx, 5Yx, 62x, 65x, 68x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Hx, 6Jx, 6Kx (only for xxU, xxF, xxM, xxB, xxH) • 1859-CTO • 1860-CTO, 2Lx, 2Mx, 2Nx, 2Yx, 3Ex, 4Mx, 4Qx, 5Bx, 5Cx, 5Sx, 6Fx, 6Gx, 6Jx (only for xxU, xxF, xxM, xxB, xxH) • 1861-CTO, 2Gx, 3Ex, 4Mx, 5Sx, 6Fx, 6Gx, 6Hx (only for xxU, xxF, xxM, xxB, xxH) • 1858-95x, 96x, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A4x, A5x, A7x, A8x, A9x, AAx, ADx, AEx, AFx, AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx (only for xxU, xxF, xxM, xxB, xxH) • 1860-BQx, BRx, BSx, BTx, BVx, BXx, C2x, C3x, C4x, C5x, C8x, C9x, CAx, CBx (only for xxU, xxF, xxM, xxB, xxH) • 1861-C8x, C9x, CAx, CBx (only for xxU, xxF, xxM, xxB, xxH)	93P4235	N
	• 1858-95x, 96x, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A4x, A5x, A7x, A8x, A9x, AAx, ADx, AEx, AFx, AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx (only for xxG, xxA) • 1859-CTO • 1860-BQx, BRx, BSx, BTx, BVx, BXx, C2x, C3x, C4x, C5x, C8x, C9x, CAx, CBx (only for xxG, xxA) • 1861-C8x, C9x, CAx, CBx (only for xxG, xxA)	39T0389	N

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No.	FRU	P/N	CRU ID
17	Intel PRO Wireless 2915ABG Mini-PCI Adapter		
	• 1846-CTO, 55x, 64x, 65x, 66x, 68x, 4Cx, 4Dx, 4Ex • 1847-CTO, 34G, 37G, 42G, 43G, 44G, 45G • 1848-CTO, 34G, 37G, 42G, 43G, 44G, 45G • 1849-CTO • 1846-CTO, A2x, A3x, A7x, A8x, A9x, 9Ex, 9Hx • 1847-CTO • 1848-CTO, 9Vx • 1849-CTO • 1858-CTO, 45x, 46x, 47x, 4Ax, 4Cx, 4Ex, 4Fx, 4Mx, 4Nx, 5Mx, 5Px, 5Qx, 5Wx, 5Yx, 62x, 65x, 68x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Hx, 6Jx, 6Kx (only for xxG, xxA) • 1859-CTO • 1860-CTO, 2Lx, 2Mx, 2Nx, 2Yx, 3Ex, 4Mx, 4Qx, 5Bx, 5Cx, 5Sx, 6Fx, 6Gx, 6Jx (only for xxG, xxA) • 1861-CTO, 2Gx, 3Ex, 4Mx, 5Sx, 6Fx, 6Gx, 6Hx (only for xxG, xxA)	93P4237	N
	• 1847-CTO • 1848-CTO • 1849-CTO • 1858-CTO, 45x, 46x, 47x, 4Ax, 4Cx, 4Ex, 4Fx, 4Mx, 4Nx, 5Mx, 5Px, 5Qx, 5Wx, 5Yx, 62x, 65x, 68x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Hx, 6Jx, 6Kx (only for xxJ, xxE) • 1860-CTO, 2Lx, 2Mx, 2Nx, 2Yx, 3Ex, 4Mx, 4Qx, 5Bx, 5Cx, 5Sx, 6Fx, 6Gx, 6Jx (only for xxJ, xxE) • 1861-CTO, 2Gx, 3Ex, 4Mx, 5Sx, 6Fx, 6Gx, 6Hx (only for xxJ, xxE)	93P4239	N
	• 1858-95x, 96x, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A4x, A5x, A7x, A8x, A9x, AAx, ADx, AEx, AFx, AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx (only for xxJ, xxE) • 1859-CTO • 1860-BQx, BRx, BSx, BTx, BVx, BXx, C2x, C3x, C4x, C5x, C8x, C9x, CAx, CBx (only for xxJ, xxE) • 1861-C8x, C9x, CAx, CBx (only for xxJ, xxE)	39T0391	N

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No.	FRU	P/N	CRU ID
17	Intel PRO Wireless 2915ABG Mini-PCI Adapter		
	• 1858-95x, 96x, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A4x, A5x, A7x, A8x, A9x, AAx, ADx, AEx, AFx, AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx (only for xxL, xxP, xxS, xxY, xxC, xxK, xxV) • 1859-CTO • 1860-BQx, BRx, BSx, BTx, BVx, BXx, C2x, C3x, C4x, C5x, C8x, C9x, CAx, CBx (only for xxL, xxP, xxS, xxY, xxC, xxK, xxV) • 1861-C8x, C9x, CAx, CBx (only for xxL, xxP, xxS, xxY, xxC, xxK, xxV)	39T0393	N
	• 1846-CTO, 5RV, 4LV, 5PC, 5QC, 4LH, 4LA, 4LB • 1847-CTO, 2Dx, 2Ex, 3Nx, 3Px, 43x, 47x • 1848-CTO • 1849-CTO • 1846-A2x, A3x, A4x, A5x, A6x, AAx, ABx, ACx, 99x, 9Gx • 1847-8Fx, 9Nx, 9Px • 1849-8Dx, ADx • 1858-CTO, 45x, 46x, 47x, 4Ax, 4Cx, 4Ex, 4Fx, 4Mx, 4Nx, 5Mx, 5Px, 5Qx, 5Wx, 5Yx, 62x, 65x, 68x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Hx, 6Jx, 6Kx (only for xxL, xxP, xxS, xxY, xxC, xxK, xxV) • 1860-CTO, 2Lx, 2Mx, 2Nx, 2Yx, 3Ex, 4Mx, 4Qx, 5Bx, 5Cx, 5Sx, 6Fx, 6Gx, 6Jx (only for xxL, xxP, xxS, xxY, xxC, xxK, xxV) • 1861-CTO, 2Gx, 3Ex, 4Mx, 5Sx, 6Fx, 6Gx, 6Hx (only for xxL, xxP, xxS, xxY, xxC, xxK, xxV)	93P4241	N
18	System board assembly with 10/100 Ethernet (for R50e) • 1834-K3x, K4x, K5x, K6x, K7x, K8x, K9x, KAx, KBx, KCx, KDx, KEx, KFx, LGx, LHx, M2x, M3x, M4x, M5x, M6x, M7x, M8x, M9x, MAx, MBx, MCx, MDx, MEx, MFx, MGx, MHx, MRx, MSx, Q5x, Q9x, QBx, QCx, RKx, RVx, S2x, S3x, S4x	39T0334	N

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No.	FRU	P/N	CRU ID
18	System board assembly with 10/100 Ethernet, wireless (for R50e) • 1834-KGx, KHx, KJx, KLx, KMx, KNx, KPx, KQx, KRx, KSx, KTx, KUx, KVx, KWx, KXx, KYx, KZx, L2x, L3x, L4x, L5x, L6x, L7x, L8x, L9x, LAx, LBx, LCx, LDx, LEx, LFx, MJx, MKx, MLx, MMx, MNx, MPx, MQx, MTx, MVx, MWx, MXx, MYx, MZx, Q2x, Q3x, Q4x, Q6x, Q7x, Q8x, QAx, R2x, R3x, R4x, R5x, R6x, R7x, R8x, R9x, RAx, RBx, RCx, RDx, REx, RFx, RGx, RHx, RJx, RMx, RNx, RPx, RQx, RRx, RSx, RTx, RUx, RWx, RXx, S5x, S6x, S7x, S8x, S9x • 1842-MUx, QDx, QEx, QFx	39T0336	N
	System board assembly with 10/100 Ethernet (for R51e) • 1843-22x, 23x, 24x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 5Sx, 5Tx, 5Ux • 1844-5Fx, 5Jx	39T5696	N
	System board assembly with 10/100 Ethernet, wireless (for R51e) • 1843-25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 3Xx, 3Yx, 3Zx, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Bx, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Hx, 4Jx, 4Kx, 4Lx, 4Mx, 4Nx, 4Px, 4Qx, 4Rx, 4Sx, 4Tx, 4Ux, 4Vx, 4Wx, 4Xx, 4Yx, 4Zx, 52x, 53x, 54x, 55x, 56x, 57x, 58x, 59x, 5Ax, 5Bx, 5Cx, 5Dx, 5Ex, 5Lx • 1844-5Gx, 5Hx • 1845-5Kx	39T5695	N
	System board assembly, M22-32 Gigabit Ether with security chip, without IEEE1394 (for R52) • 1846-CTO, 52x, 53x, 56x, 57x, 58x, 59x, 5A • 1847-CTO, 28x, 38x • 1848-CTO • 1849-CTO, 5Sx, 6Wx	39T0006	N

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No.	FRU	P/N	CRU ID
18	System board assembly, M22-64 Gigabit Ether with security chip, without IEEE1394 (for R52) • 1846-CTO, 62x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Tx • 1847-CTO, 22x, 23x, 29x, 2Ax, 2Bx, 2Cx, 47x, 32x, 33x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx • 1848-CTO, 22x, 23x, 32x, 33x • 1849-CTO • 1850-22x • 1870-22x	39T0050	N
	System board assembly, M22-32 Gigabit Ether with security chip, IEEE1394 (for R52) • 1846-CTO, 54x, 55x, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Hx, 5Jx, 5Kx, 5Lx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 63x, 64x, 65x, 66x, 67x, 68x, 69x, 6Fx, 6Gx, 6Hx, 6Jx, 6Kx, 6Lx, 6Mx, 6Nx, 6Px, 6Qx, 6Rx, 6Sx, 6Ux, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Hx, 4Jx, 4Kx, 4Lx, 4Mx, 4Nx, 2Hx, 2Jx, 3Vx, 3Wx • 1847-CTO, 26x, 2Dx, 2Ex, 2Fx, 2Gx, 24x, 25x, 27x, 42x, 43x, 44x, 45x, 46x, 48x, 49x, 4Ax, 4Bx, 3Mx, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 34x, 35x, 36x, 37x, 3Ux • 1848-CTO, 26x, 2Fx, 2Gx, 24x, 25x, 27x, 42x, 43x, 44x, 45x, 4Bx, 34x, 35x, 36x, 37x • 1849-CTO	39T0051	N
	System board assembly, M22-32 Gigabit Ether with security chip, without IEEE1394 (for R52) • 1846-CTO, 84x, 85x • 1847-CTO • 1848-CTO • 1849-CTO	39T0433	N
	System board assembly, M22-64 Gigabit Ether with security chip, without IEEE1394 (for R52) • 1846-CTO, 8Ax • 1847-CTO, 82x, 83x, 92x, 93x, 8Ex, 8Fx, 8Gx, 8Hx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx • 1848-CTO, 82x, 83x, 92x, 93x • 1849-CTO, 8Px, 8Qx, 8Sx, 8Tx, ANx, APx, 9Xx, 9Yx, 9Zx	39T0434	N

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No.	FRU	P/N	CRU ID
18	System board assembly, M22-64 Gigabit Ether with security chip, IEEE1394 (for R52) • 1846-CTO, 86x, 87x, 88x, 89x, 8Bx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Cx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx • 1847-CTO, AEx, AFx, AGx, AHx, 9Lx, 9Mx, 8Jx, 8Kx, AJx • 1848-CTO, 8Lx, AKx, 9Ux, 9Vx, 8Mx, 8Nx, ALx • 1849-CTO, 8Cx, 8Dx, 9Wx, ADx, 8Rx, AMx, 91x	39T0435	N
	System board assembly, M22-32 Gigabit Ether with security chip, without IEEE1394 (for R52) **R** • 1846-CTO, 84x, 85x • 1847-CTO • 1848-CTO • 1849-CTO	39T0439	N
	System board assembly, M22-64 Gigabit Ether with security chip, without IEEE1394 (for R52) **R** • 1846-CTO, 84x • 1847-CTO, 82x, 83x, 92x, 93x, 8Ex, 8Fx, 8Gx, 8Hx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx • 1848-CTO, 82x, 83x, 92x, 93x • 1849-CTO, 8Px, 8Qx, 8Sx, 8Tx, ANx, APx, 9Xx, 9Yx, 9Zx	39T0440	N
	System board assembly, M22-64 Gigabit Ether with security chip, IEEE1394 (for R52) **R** • 1846-CTO, 86x, 87x, 88x, 89x, 8Bx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Cx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx • 1847-CTO, AEx, AFx, AGx, AHx, 9Lx, 9Mx, 8Jx, 8Kx, AJx • 1848-CTO, 8Lx, AKx, 9Ux, 9Vx, 8Mx, 8Nx, ALx • 1849-CTO, 8Cx, 8Dx, 9Wx, ADx, 8Rx, AMx, 91x	39T0441	N

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No.	FRU	P/N	CRU ID
18	System board assembly, 915GM (for R52) • 1858-CTO, 2Ex, 54x, 59x, 5Ax, 5Fx, 5Gx, 5Hx, 5Jx • 1859-CTO, 2Ax, 2Hx, 4Rx, 4Sx, 55x, 5Dx • 1860-CTO, 2Bx, 2Fx, 2Kx, 2Lx, 2Mx, 2Nx, 4Qx, 56x, 57x, 58x, 5Bx, 5Cx, 5Ex, 5Gx, 5Hx, 5Kx • 1861-CTO, 2Bx, 2Fx, 2Gx, 2Kx, 56x, 5Ex	39T0320	N
	System board assembly, 910GML (for R52) • 1858-CTO, 22x, 29x, 2Px, 2Rx, 2Sx, 4Tx, 4Ux, 4Vx, 4Wx, 53x, 5Lx	39T0321	N
	System board assembly, 915GM, with IEEE1394 (for R52) • 1858-CTO, 2Ux, 2Vx, 2Wx, 2Xx, 2Zx, 32x, 33x, 34x, 37x, 38x, 3Bx, 3Cx, 3Dx, 45x, 46x, 47x, 48x, 49x, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Kx, 4Lx, 4Mx, 4Nx, 5Mx, 5Nx, 5Px, 5Qx, 5Tx, 5Ux, 5Vx, 5Wx, 5Xx, 5Yx, 62x, 64x, 65x, 67x, 68x, 69x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Hx, 6Jx, 6Kx • 1859-CTO, 35x, 39x, 3Ax, 4Bx, 4Hx, 4Px, 63x, 66x • 1860-CTO, 2Tx, 2Yx, 32x, 3Bx, 3Ex, 4Mx, 4Jx, 5Sx, 5Ux, 5Zx, 69x, 6Fx, 6Gx, 6Jx • 1861-CTO, 32x, 3Bx, 3Ex, 4Mx, 5Sx, 69x, 6Fx, 6Gx, 6Jx	39T0322	N
	System board assembly, 910GML, with IEEE1394 (for R52) • 1858-CTO, 2Qx, 42x, 44x, 4Yx • 1859-CTO, 23x, 24x, 27x, 43x, 4Xx, 4Zx, 52x • 1860-CTO, 25x • 1861-CTO, 25x, 26x	39T0323	N
	System board assembly, 915GM (for R52) • 1858-CTO, 9Fx, 9Gx, 9Hx, AJx, CCx • 1859-CTO • 1860-CTO, BPx, 9Fx, 9Gx, BQx, BRx, BSx, BTx, BUx, BWx, BXx, BZx, C2x, C3x • 1861-CTO, 9Gx, BUx, BZx • 1862-CTO, 2Cx • 1863-CTO, 2Dx	39T5646	N

(continued)

No.	FRU	P/N	CRU ID
18	System board assembly, 910GM (for R52) • 1858-CTO, 9Bx, 9Dx, 9Ex, 9Jx, 9Kx • 1859-CTO • 1860-CTO • 1861-CTO	39T5647	N
	System board assembly, 915GM, with 1394 (for R52) • 1858-CTO, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B2x, B3x, B4x, B5x • 1859-CTO, B6x, B7x, B8x, B9x, BAx, BBx, BCx, BDx, BEx, BFx, BGx, BHx, BJx, BKx, BLx, BMx • 1860-CTO, BVx, BYx, C4x, C5x, C8x, C9x, CAx, CBx • 1861-CTO, C8x, C9x, CAx, CBx	39T5648	N
	System board assembly, 910GM, with 1394 (for R52) • 1858-CTO, 92x, AGx, AHx • 1859-CTO • 1860-CTO, C6x, C7x • 1861-CTO, C6x, C7x • 1862-CTO • 1863-CTO	39T5649	N
19	PC Card slot for R50e	13N5181	N
	ExpressCard slot for R52 , R51e	91P8826	N

(continued)

No.	FRU	P/N	CRU ID
20	IEEE1394 cable for R52 • 1846-CTO, 2Hx, 2Jx, 3Vx, 3Wx, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Hx, 4Jx, 4Kx, 4Lx, 4Mx, 4Nx, 54x, 55x, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Hx, 5Jx, 5Kx, 5Lx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 63x, 64x, 65x, 66x, 67x, 68x, 69x, 6Fx, 6Gx, 6Hx, 6Jx, 6Kx, 6Lx, 6Mx, 6Nx, 6Px, 6Qx, 6Rx, 6Sx, 6Ux • 1847-CTO, 24x, 25x, 26x, 27x, 2Dx, 2Ex, 2Fx, 2Gx, 34x, 35x, 36x, 37x, 3Mx, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 42x, 43x, 44x, 45x, 46x, 48x, 49x, 4Ax, 4Bx • 1848-CTO, 24x, 25x, 26x, 27x, 2Fx, 2Gx, 34x, 35x, 36x, 37x, 42x, 43x, 44x, 45x, 4Bx • 1849-CTO, 4xx, 5xx, 6xx • 1846-86x, 87x, 88x, 89x, 8Bx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Cx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx • 1847-AEx, AFx, AGx, AHx, 9Lx, 9Mx, 8Jx, 8Kx, AJx • 1848-8Lx, AKx, 9Ux, 9Vx, 8Mx, 8Nx, ALx • 1849-8Cx, 8Dx, 9Wx, ADx, 8Rx, AMx, 91x • 1858-CTO, 28x, 2Qx, 2Ux, 2Vx, 2Wx, 2Xx, 2Zx, 32x, 33x, 34x, 37x, 38x, 3Bx, 3Cx, 3Dx, 42x, 44x, 45x, 46x, 47x, 48x, 49x, 4Ax, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Kx, 4Lx, 4Mx, 4Nx, 4Yx, 5Mx, 5Nx, 5Px, 5Qx, 5Rx, 5Tx, 5Ux, 5Vx, 5Wx, 5Xx, 5Yx, 62x, 64x, 65x, 67x, 68x, 69x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Hx, 6Jx, 6Kx, • 1859-CTO, 23x, 24x, 27x, 35x. 39x, 3Ax, 43x, 4Bx, 4Hx, 4Px, 4Xx, 4Zx, 52x, 63x, 66x, • 1860-CTO, 25x, 2Tx, 2Yx, 32x, 3Bx, 3Ex, 4Jx, 4Mx, 5Sx, 5Ux, 5Zx, 69x, 6Fx, 6Gx, 6Jx,	91P6829	N

(continued)

No.	FRU	P/N	CRU ID
20	IEEE1394 cable for R52 R • 1858-CTO, 92x, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AGx, AHx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B2x, B3x, B4x, B5x • 1859-CTO, B6x, B7x, B8x, B9x, BAx, BBx, BCx, BDx, BEx, BFx, BGx, BHx, BJx, BKx, BLx, BMx • 1860-CTO, BVx, BYx, C4x, C5x, C6x, C7xC8x, C9x, CAx, CBx • 1861-CTO, C6x, C7xC8x, C9x, CAx, CBx • 1862-CTO • 1863-CTO	91P6961	N
21	Fan for R50e, R51e	13N5182	N
	Fan for R51e R	39T9895	N
	Fan for R52 • 1846-2xx, 3xx, 4xx, 5xx, 6xx • 1847-2xx, 3xx, 4xx • 1848-2xx, 3xx, 4xx • 1849-4xx, 5xx, 6xx	26R8198	N
	Fan for R52 • 1846-8xx, 9xx, Axx • 1847-8xx, 9xx, Axx • 1848-8xx, 9xx, Axx • 1849-8xx, 9xx, Axx	26R9542	
	Fan for R52 • 1858-2xx, 3xx, 4xx, 5xx, 6xx • 1859-2xx, 3xx, 4xx, 5xx, 6xx • 1860-2xx, 3xx, 4xx, 5xx, 6xx • 1861-2xx, 3xx, 4xx, 5xx, 6xx • 1862-2xx • 1863-2xx	26R8296	N
	Fan for R52 R • 1858-9xx, Axx, Bxx, Cxx • 1859-Bxx • 1860-9xx, Bxx, Cxx • 1861-9xx, Bxx, Cxx	26R9119	N
22	Keyboard (see “Keyboard” on page 241)		**
23	TrackPoint stick caps	91P9642	*
—	Telephone cable	91P6839	*
—	Thermal grease	46L4855	N
—	AC adapter (see “AC adapters” on page 240.)		*

LCD FRUs

14.1-in. XGA TFT

No.	FRU	P/N	CRU ID
k- n	See “Miscellaneous parts” on page 253.		
1	LCD cover kit, 14.1-in. (no wireless) • 1834-K3x, K4x, K5x, K6x, K7x, K8x, K9x, KAx, KBx, KCx, KDx, KEx, KFx, LGx, LHx, Q5x, Q9x, QBx, QCx • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 5Lx • 1844-5Fx, 5Jx	13N5593	N
	LCD cover kit, 14.1-in. • 1834-KGx, KHx, KJx, KLx, KMx, KNx, KPx, KQx, KRx, KSx, KTx, KUx, KVx, KWx, KXx, KYx, KZx, L2x, L3x, L4x, L5x, L6x, L7x, L8x, L9x, LAx, LBx, LCx, LDx, LEx, LFx, Q4x, Q8x • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx • 1844-5Fx, 5Jx • 1846-CTO, 2xx, 5xx • 1847-CTO, 2xx • 1848-CTO, 2xx • 1849-CTO, 5xx • 1850-CTO, 2xx • 1870-CTO, 2xx • 1846-84x, 85x, 86x. 87x, 88x, 89x, 8Ax, 8Bx • 1847-82x, 83x, 8Ex, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx • 1848-82x, 83x, 8Lx, 8Mx, 8Nx • 1849-8Cx, 8Dx, 8Px, 8Qx, 8Rx, 8Sx, 8Tx • 1858-CTO, 2xx, 3xx • 1859-CTO, 2xx, 3xx • 1860-CTO, 2xx, 3xx • 1861-CTO, 2xx, 3xx • 1862-CTO, 2xx • 1863-CTO, 2xx (continued)	13R2664	N

(continued)

No.	FRU	P/N	CRU ID
1	LCD cover kit, 14.1-in. • 1858-92x, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, CCx • 1859-B6x, B7x, B8x, BBx, BCx, BDx, BEx • 1860-BPx, 9Fx, 9Gx, BQx, BRx, BSx, C6x, C7x, C8x, C9x • 1861-9Gx, C6x, C7x, C8x, C9x	13R2664	N
2	Hinges, 14.1-in. • 1834-Kxx, Lxx, Q4x, Q5x, Q8x, Q9x, QBx, QCx • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx • 1844-5Fx, 5Jx • 1846-CTO, 2xx, 5xx • 1847-CTO, 2xx • 1848-CTO, 2xx • 1849-CTO, 5xx • 1850-CTO, 2xx • 1870-CTO, 2xx • 1846-84x, 85x, 86x. 87x, 88x, 89x, 8Ax, 8Bx • 1847-82x, 83x, 8Ex, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx • 1848-82x, 83x, 8Lx, 8Mx, 8Nx • 1849-8Cx, 8Dx, 8Px, 8Qx, 8Rx, 8Sx, 8Tx • 1858-CTO, 2xx, 3xx • 1859-CTO, 2xx, 3xx • 1860-CTO, 2xx, 3xx • 1861-CTO, 2xx, 3xx • 1862-CTO, 2xx • 1863-CTO, 2xx • 1858-92x, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, CCx • 1859-B6x, B7x, B8x, BBx, BCx, BDx, BEx • 1860-BPx, 9Fx, 9Gx, BQx, BRx, BSx, C6x, C7x, C8x, C9x • 1861-9Gx, C6x, C7x, C8x, C9x	13R2982	N

(continued)

No.	FRU	P/N	CRU ID
3	LCD cable assembly 14.1-in. XGA, CR • 1834-Kxx, Lxx, Q4x, Q5x, Q8x, Q9x, QBx, QCx • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 5Lx • 1844-5Fx, 5Jx	91P6852	N
	LCD cable assembly 14.1-in. XGA, CR • 1846-CTO, 2xx, 5xx • 1847-CTO, 2xx • 1848-CTO, 2xx • 1849-CTO, 5xx • 1850-CTO, 2xx • 1870-CTO, 2xx • 1858-CTO, 2xx, 3xx • 1859-CTO, 2xx, 3xx • 1860-CTO, 2xx, 3xx • 1861-CTO, 2xx, 3xx • 1862-CTO, 2xx • 1863-CTO, 2xx	91P6902	N
	LCD cable assembly 14.1-in. XGA R • 1846-CTO, 84x, 85x, 86x, 87x, 88x, 89x, 8Ax, 8Bx • 1847-CTO, 82x, 83x, 8Ex, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx • 1848-CTO, 82x, 83x, 8Lx, 8Mx, 8Nx • 1849-CTO, 8Cx, 8Dx, 8Px, 8Qx, 8Rx, 8Sx, 8Tx • 1858-CTO, 92x, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, CCx • 1859-CTO, B6x, B7x, B8x, BBx, BCx, BDx, BEx • 1860-CTO, BPx, 9Fx, 9Gx, BQx, BRx, BSx, C6x, C7x, C8x, C9x • 1861-CTO, 9Gx, C6x, C7x, C8x, C9x	91P6921	N

(continued)

No.	FRU	P/N	CRU ID
4	*Bluetooth* antenna • 1846-CTO, 2Jx, 54x, 55x • 1847-CTO, 24x, 25x, 27x • 1848-CTO, 24x, 25x, 27x • 1849-CTO, 5Xx, 5Yx • 1850-CTO • 1870-CTO • 1846-8Bx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, 98x, 9Cx, 9Ex, 9Fx, 9Hx • 1847-AEx, AFx, AGx, AHx, 9Rx, AJx • 1848-8Lx, AKx, 9Ux, 9Vx, ALx • 1849-8Dx, ADx, 8Px, 8Qx, AMx, ANx, APx, 9Yx, 9Zx • 1858-CTO, 3Bx, 3Cx, 3Dx, • 1859-CTO • 1860-CTO, 3Bx, 3Ex • 1861-CTO, 3Bx, 3Ex • 1862-CTO • 1863-CTO • 1858-CTO, 95x, 96x •	13N5179	N

(continued)

No.	FRU	P/N	CRU ID
5	802.11a/b/g antenna, 14.1-in. • 1834-KGx, KHx, KJx, KLx, KMx, KNx, KPx, KQx, KRx, KSx, KTx, KUx, KVx, KWx, KXx, KYx, KZx, L2x, L3x, L4x, L5x, L6x, L7x, L8x, L9x, LAx, LBx, LCx, LDx, LEx, LFx, Q4x, Q8x • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 5Lx • 1846-CTO, 2xx, 5xx • 1847-CTO, 2xx • 1848-CTO, 2xx • 1849-CTO, 5xx • 1850-CTO, 2xx • 1870-CTO, 2xx • 1846-84x, 85x, 86x. 87x, 88x, 89x, 8Ax, 8Bx • 1847-82x, 83x, 8Ex, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx • 1848-82x, 83x, 8Lx, 8Mx, 8Nx • 1849-8Cx, 8Dx, 8Px, 8Qx, 8Rx, 8Sx, 8Tx • 1858-CTO, 2xx, 3xx • 1859-CTO, 2xx, 3xx • 1860-CTO, 2xx, 3xx • 1861-CTO, 2xx, 3xx • 1862-CTO, 2xx • 1863-CTO, 2xx • 1858-92x, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, CCx • 1859-B6x, B7x, B8x, BBx, BCx, BDx, BEx • 1860-BPx, 9Fx, 9Gx, BQx, BRx, BSx, C6x, C7x, C8x, C9x • 1861-9Gx, C6x, C7x, C8x, C9x	13N5177	N

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No.	FRU	P/N	CRU ID
6	Inverter card, XGA • 1834-Kxx, Lxx, Q4x, Q5x, Q8x, Q9x, QBx, QCx	27K9949	N
	Inverter card, XGA • 1846-CTO, 2xx, 5xx • 1847-CTO, 2xx • 1848-CTO, 2xx • 1849-CTO, 5xx • 1850-CTO, 2xx • 1870-CTO, 2xx	39T0019	N
	Inverter card, XGA/SXGA+ • 1846-CTO, 8xx • 1847-CTO, 8xx • 1848-CTO, 8xx • 1849-CTO, 8xx • 1858-CTO, 2xx, 3xx • 1859-CTO, 2xx, 3xx • 1860-CTO, 2xx, 3xx • 1861-CTO, 2xx, 3xx • 1862-CTO, 2xx • 1863-CTO, 2xx • 1858-92x, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, CCx • 1859-B6x, B7x, B8x, BBx, BCx, BDx, BEx • 1860-BPx, 9Fx, 9Gx, BQx, BRx, BSx, C6x, C7x, C8x, C9x • 1861-9Gx, C6x, C7x, C8x, C9x • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 5Lx • 1844-5Fx, 5Jx	39T0368	N

(continued)

No.	FRU	P/N	CRU ID
7	LCD panel, 14.1-in. XGA, Samsung (440) • 1834-Kxx, Lxx, Q4x, Q5x, Q8x, Q9x, QBx, QCx	92P6717	N
	LCD panel, 14.1-in. XGA, Samsung • 1858-CTO, 2xx, 3xx • 1859-CTO, 2xx, 3xx • 1860-CTO, 2xx, 3xx • 1861-CTO, 2xx, 3xx • 1862-CTO, 2xx • 1863-CTO, 2xx • 1858-92x, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, CCx • 1859-B6x, B7x, B8x, BBx, BCx, BDx, BEx • 1860-BPx, 9Fx, 9Gx, BQx, BRx, BSx, C6x, C7x, C8x, C9x • 1861-9Gx, C6x, C7x, C8x, C9x • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 5Lx • 1844-5Fx, 5Jx	92P6759	N
	LCD panel, 14.1-in. XGA, Samsung • 1834-Kxx, Lxx, Q4x, Q5x, Q8x, Q9x, QBx, QCx • 1846-CTO, 2xx, 5xx • 1847-CTO, 2xx • 1848-CTO, 2xx • 1849-CTO, 5xx • 1850-CTO, 2xx • 1870-CTO, 2xx • 1846-84x, 85x, 86x, 87x, 88x, 89x, 8Ax, 8Bx • 1847-82x, 83x, 8Ex, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx • 1848-82x, 83x, 8Lx, 8Mx, 8Nx • 1849-8Cx, 8Dx, 8Px, 8Qx, 8Rx, 8Sx, 8Tx	11P8352	N

(continued)

No.	FRU	P/N	CRU ID
7	LCD panel, 14.1-in. XGA, Hydis • 1834-Kxx, Lxx, Q4x, Q5x, Q8x, Q9x, QBx, QCx • 1843-22x, 23x, 2Fx, 2Gx, 2Hx, 2Jx, 2Kx, 2Lx, 2Mx, 2Nx, 2Px, 2Qx, 2Rx, 2Sx, 2Tx, 2Ux, 2Vx, 2Wx, 2Xx, 2Yx, 2Zx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Ax, 3Bx, 3Cx, 3Dx, 3Ex, 3Fx, 3Gx, 3Hx, 3Jx, 3Kx, 3Lx, 3Mx, 5Lx • 1844-5Fx, 5Jx	92P6745	N
	LCD panel, 14.1-in. XGA, Hydis • 1846-CTO, 2xx, 5xx • 1847-CTO, 2xx • 1848-CTO, 2xx • 1849-CTO, 5xx • 1850-CTO, 2xx • 1870-CTO, 2xx • 1846-84x, 85x, 86x, 87x, 88x, 89x, 8Ax, 8Bx • 1847-82x, 83x, 8Ex, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx • 1848-82x, 83x, 8Lx, 8Mx, 8Nx • 1849-8Cx, 8Dx, 8Px, 8Qx, 8Rx, 8Sx, 8Tx • 1858-CTO, 2xx, 3xx • 1859-CTO, 2xx, 3xx • 1860-CTO, 2xx, 3xx • 1861-CTO, 2xx, 3xx • 1862-CTO, 2xx • 1863-CTO, 2xx • 1858-92x, 93x, 94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Dx, 9Ex, 9Fx, 9Gx, CCx • 1859-B6x, B7x, B8x, BBx, BCx, BDx, BEx • 1860-BPx, 9Fx, 9Gx, BQx, BRx, BSx, C6x, C7x, C8x, C9x • 1861-9Gx, C6x, C7x, C8x, C9x	92P2664	N
8	Clear plate for R50e, R51e	13N5599	N
	Clear plate for R51e	41V9069	N
	Clear plate for R52	26R8254	N

15.0-in. XGA TFT

No.	FRU	P/N	CRU ID
k- n	See "Miscellaneous parts" on page 253.		
1	LCD cover kit, 15.0-in. (no wireless) for R50e • 1834-M2x, M3x, M4x, M5x, M6x, M7x, M8x, M9x, MAx, MBx, MCx, MDx, MEx, MFx, MGx, MHx, MRx, MSx, RKx, RVx, S2x, S3x, S4x • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx • 1844-5Gx, 5Hx	13N5596	N
	LCD cover kit, 15.0-in.for WW wireless for R50e • 1834-MJx, MKx, MLx, MMx, MNx, MPx, MQx, MTx, MVx, MWx, MXx, MYx, MZx, Q2x, Q3x, Q6x, Q7x, QAx, R2x, R3x, R4x, R5x, R6x, R7x, R8x, R9x, RAx, RBx, RCx, RDx, REx, RFx, RGx, RHx, RJx, RMx, RNx, RPx, RQx, RRx, RSx, RTx, RUx, RVx, RWx, RXx, S5x, S6x, S7x, S8x, S9x • 1842-MUx, QDx, QEx, QFx • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx • 1845-5Kx	13N5173	N
	LCD cover kit, 15.0-in. for R51e, R52 • 1846-CTO, 3Vx, 6xx • 1847-CTO, 3xx • 1848-CTO, 3xx • 1849-CTO, 6xx • 1846-9xx • 1847-9xx • 1848-9xx • 1849-9xx • 1858-CTO, 4Vx, 4Wx, 5xx, 6xx except 6Kx • 1859-CTO, 4Xx, 4Yx, 4Zx, 5xx, 6xx • 1860-CTO, 5xx, 6xx • 1861-CTO, 5xx, 6xx • 1862-CTO • 1863-CTO (continued)	13R2667	N

(continued)

No.	FRU	P/N	CRU ID
1	LCD cover kit, 15.0-in. for R51e, R52 • 1858-9Hx, 9Jx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AGx, AHx, B2x, B3x • 1859-B9x, BFx, BGx, BHx, BJx • 1860-CTO, BTx, BUx, BVx, BWx, BXx, BYx, BZx, C2x, C3x, CAx, CBx • 1861-BUx, BZx, CAx, CBx	13R2667	N
2	Hinges, 15.0-in. • 1834-Mxx, Q2x, Q3x, Q6x, Q7x, QAx, Rxx • 1842-Mxx, QDx, QEx, QFx • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx • 1844-5Gx, 5Hx • 1845-5Kx • 1846-CTO, 3Vx, 6xx • 1847-CTO, 3xx • 1848-CTO, 3xx • 1849-CTO, 6xx • 1846-9xx • 1847-9xx • 1848-9xx • 1849-9xx • 1858-CTO, 4Vx, 4Wx, 5xx, 6xx except 6Kx • 1859-CTO, 4Xx, 4Yx, 4Zx, 5xx, 6xx • 1860-CTO, 5xx, 6xx • 1861-CTO, 5xx, 6xx • 1862-CTO • 1863-CTO • 1858-9Hx, 9Jx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AGx, AHx, B2x, B3x • 1859-B9x, BFx, BGx, BHx, BJx • 1860-CTO, BTx, BUx, BVx, BWx, BXx, BYx, BZx, C2x, C3x, CAx, CBx • 1861-BUx, BZx, CAx, CBx	13N5176	N

(continued)

No.	FRU	P/N	CRU ID
3	LCD cable assembly, 15.0-in. XGA • 1834-Mxx, Q2x, Q3x, Q6x, Q7x, QAx, Rxx • 1842-Mxx, QDx, QEx, QFx • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx • 1844-5Gx, 5Hx • 1845-5Kx	91P6826	N
	LCD cable assembly, 15.0-in. XGA • 1846-CTO, 3Vx, 6xx • 1847-CTO, 3xx • 1848-CTO, 3xx • 1849-CTO, 6xx • 1858-CTO, 4Vx, 4Wx, 5xx, 6xx except 6Kx • 1859-CTO, 4Xx, 4Yx, 4Zx, 5xx, 6xx • 1860-CTO, 5xx, 6xx • 1861-CTO, 5xx, 6xx • 1862-CTO • 1863-CTO	91P6904	N
	LCD cable assembly, 15.0-in. XGA R • 1846-CTO, 9xx • 1847-CTO, 9xx • 1848-CTO, 9xx • 1849-CTO, 9xx • 1858-9Hx, 9Jx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AGx, AHx, B2x, B3x • 1859-B9x, BFx, BGx, BHx, BJx • 1860-CTO, BTx, BUx, BVx, BWx, BXx, BYx, BZx, C2x, C3x, CAx, CBx • 1861-BUx, BZx, CAx, CBx	91P6922	N

(continued)

No.	FRU	P/N	CRU ID
4	*Bluetooth* antenna • 1846-CTO, 63x, 64x, 65x, 66x, 67x, 68x, 69x, 6Tx, 6Ux • 1847-CTO, 34x, 35x, 36x, 37x, 3Ux • 1848-CTO, 34x, 35x, 36x, 37x • 1849-CTO, 6Yx, 6Zx • 1846-8Bx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, 98x, 9Cx, 9Ex, 9Fx, 9Hx • 1847-AEx, AFx, AGx, AHx, 9Rx, AJx • 1848-8Lx, AKx, 9Ux, 9Vx, ALx • 1849-8Dx, ADx, 8Px, 8Qx, AMx, ANx, APx, 9Yx, 9Zx • 1858-CTO, 67x, 68x, 69x, 6Ax, 6Bx, 6Cx, 6Dx, 6Ex, 6Fx, 6Hx, 6Jx, 6Ux • 1859-CTO • 1860-CTO, 6xx • 1861-CTO, 6xx • 1862-CTO • 1863-CTO • 1858-9Kx, 9Mx, A4x, A5x, A6x, A7x, A8x, A9x, AAx, • 1860-CTO, BVx, BWx	13N5179	N

(continued)

No.	FRU	P/N	CRU ID
5	802.11a/b/g antenna, 15.0-in. • 1834-MJx, MKx, MLx, MMx, MNx, MPx, MQx, MTx, MVx, MWx, MXx, MYx, MZx, Q2x, Q3x, Q6x, Q7x, QAx, R2x, R3x, R4x, R5x, R6x, R7x, R8x, R9x, RAx, RBx, RCx, RDx, REx, RFx, RGx, RHx, RJx, RMx, RNx, RPx, RQx, RRx, RSx, RTx, RUx, RVx, RWx, RXx, S5x, S6x, S7x, S8x, S9x • 1842-MUx, QDx, QEx, QFx • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx • 1845-5Kx • 1846-CTO, 3Vx, 6xx • 1847-CTO, 3xx • 1848-CTO, 3xx • 1849-CTO, 6xx • 1846-9xx • 1847-9xx • 1848-9xx • 1849-9xx • 1858-CTO, 4Vx, 4Wx, 5xx, 6xx except 6Kx • 1859-CTO, 4Xx, 4Yx, 4Zx, 5xx, 6xx • 1860-CTO, 5xx, 6xx • 1861-CTO, 5xx, 6xx • 1862-CTO • 1863-CTO • 1858-9Hx, 9Jx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AGx, AHx, B2x, B3x • 1859-B9x, BFx, BGx, BHx, BJx • 1860-BTx, BUx, BVx, BWx, BXx, BYx, BZx, C2x, C3x, CAx, CBx • 1861-BUx, BZx, CAx, CBx	13N5178	N

(continued)

No.	FRU	P/N	CRU ID
6	Inverter card, XGA • 1834-Mxx, Q2x, Q3x, Q6x, Q7x, QAx, Rxx • 1842-Mxx, QDx, QEx, QFx	27K9949	N
	Inverter card, XGA/SXGA+ • 1846-CTO, 3Vx, 6xx • 1847-CTO, 3xx • 1848-CTO, 3xx • 1849-CTO, 6xx • 1858-CTO, 4Vx, 4Wx, 5xx, 6xx except 6Kx • 1859-CTO, 4Xx, 4Yx, 4Zx, 5xx, 6xx • 1860-CTO, 5xx, 6xx • 1861-CTO, 5xx, 6xx • 1862-CTO • 1863-CTO	39T0019	N
	Inverter card, XGA/SXGA+ • 1846-CTO, 9xx • 1847-CTO, 9xx • 1848-CTO, 9xx • 1849-CTO, 9xx • 1858-CTO, 9Hx, 9Jx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AGx, AHx, B2x, B3x • 1859-CTO, B9x, BFx, BGx, BHx, BJx • 1860-CTO, BTx, BUx, BVx, BWx, BXx, BYx, BZx, C2x, C3x, CAx, CBx • 1861-CTO, BUx, BZx, CAx, CBx • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx • 1844-5Gx, 5Hx • 1845-5Kx	39T0368	N

(continued)

No.	FRU	P/N	CRU ID
7	LCD panel, 15.0-in. XGA • 1834-Mxx, Q2x, Q3x, Q6x, Q7x, QAx, Rxx • 1842-Mxx, QDx, QEx, QFx • 1843-24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 3Nx, 3Px, 3Qx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Xx, 3Yx, 3Zx, 4xx, 5xx • 1844-5Gx, 5Hx • 1845-5Kx • 1846-CTO, 3Vx, 6xx • 1847-CTO, 3xx • 1848-CTO, 3xx • 1849-CTO, 6xx • 1846-94x, 95x, 96x, 97x, 98x, 99x, 9Ax, 9Bx, 9Cx, 9Dx, 9Ex, 9Fx, 9Gx • 1847-92x, 93x, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx • 1848-92x, 93x, 9Ux, 9Vx • 1849-9Wx, 9Xx, 9Yx, 9Zx, 91x • 1858-CTO, 4Vx, 4Wx, 5xx, 6xx except 6Kx • 1859-CTO, 4Xx, 4Yx, 4Zx, 5xx, 6xx • 1860-CTO, 5xx, 6xx • 1861-CTO, 5xx, 6xx • 1862-CTO • 1863-CTO • 1858-9Hx, 9Jx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A2x, A3x, A4x, A5x, A6x, A7x, A8x, A9x, AAx, ABx, ACx, ADx, AEx, AFx, AGx, AHx, B2x, B3x • 1859-B9x, BFx, BGx, BHx, BJx • 1860-BTx, BUx, BVx, BWx, BXx, BYx, BZx, C2x, C3x, CAx, CBx • 1861-BUx, BZx, CAx, CBx		
	Samsung	92P6678	N
	LG	92P6679	N
	LG	13N7039	N
8	Clear plate for R50e, R51e	13N5599	N
	Clear plate for R51e	41V9069	N
	Clear plate for R52	26R8254	N

15.0-in. SXGA+ TFT

No.	FRU	P/N	CRU ID
k- n	See “Miscellaneous parts” on page 253.		
1	LCD cover kit, 15.0-in. (WW) • 1846-CTO, 3Wx, 4xx • 1847-CTO, 4xx • 1848-CTO, 4xx, • 1849-CTO, 4xx • 1846-Axx • 1847-Axx • 1848-Axx • 1849-Axx • 1858-CTO, 42x, 44x, 45x, 46x, 47x, 48x, 49x, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Kx, 4Lx, 4Mx, 4Nx, 6Kx • 1859-CTO, 43x, 4Ax, 4Bx, 4Hx, 4Px, 4Rx, 4Sx • 1860-CTO, 4Jx, 4Mx, 4Qx • 1861-CTO, 4Mx • 1862-CTO • 1863-CTO • 1858-AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B4x, B5x • 1859-BAx, BKx, BLx, BMx • 1860-C4x, C5x	13R2667	N
2	Hinges, 15.0-in. • 1846-CTO, 3Wx, 4xx • 1847-CTO, 4xx • 1848-CTO, 4xx, • 1849-CTO, 4xx • 1846-Axx • 1847-Axx • 1848-Axx • 1849-Axx • 1858-CTO, 42x, 44x, 45x, 46x, 47x, 48x, 49x, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Kx, 4Lx, 4Mx, 4Nx, 6Kx • 1859-CTO, 43x, 4Ax, 4Bx, 4Hx, 4Px, 4Rx, 4Sx • 1860-CTO, 4Jx, 4Mx, 4Qx • 1861-CTO, 4Mx • 1862-CTO • 1863-CTO • 1858-AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B4x, B5x • 1859-BAx, BKx, BLx, BMx • 1860-C4x, C5x	13N5176	N

(continued)

No.	FRU	P/N	CRU ID
3	LCD cable assembly, 15.0-in. SXGA+ • 1846-CTO, 3Wx, 4xx • 1847-CTO, 4xx • 1848-CTO, 4xx, • 1849-CTO, 4xx	91P6876	N
	LCD cable assembly, 15.0-in. SXGA+ • 1858-CTO, 42x, 44x, 45x, 46x, 47x, 48x, 49x, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Kx, 4Lx, 4Mx, 4Nx, 6Kx • 1859-CTO, 43x, 4Ax, 4Bx, 4Hx, 4Px, 4Rx, 4Sx • 1860-CTO, 4Jx, 4Mx, 4Qx • 1861-CTO, 4Mx • 1862-CTO • 1863-CTO	91P6906	N
	LCD cable assembly, 15.0-in. SXGA+/IPS **R** • 1846-CTO, Axx • 1847-CTO, Axx • 1848-CTO, Axx • 1849-CTO, Axx • 1858-AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B4x, B5x • 1859-BAx, BKx, BLx, BMx • 1860-C4x, C5x	91P6923	N
4	*Bluetooth* antenna • 1846-CTO, 3Wx, 4xx • 1847-CTO, 4xx • 1848-CTO, 4xx, • 1849-CTO, 4xx • 1846-Axx • 1847-Axx • 1848-Axx • 1849-Axx • 1858-CTO, 42x, 44x, 45x, 46x, 47x, 48x, 49x, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Kx, 4Lx, 4Mx, 4Nx, 6Kx • 1859-CTO, 43x, 4Ax, 4Bx, 4Hx, 4Px, 4Rx, 4Sx • 1860-CTO, 4Jx, 4Mx, 4Qx • 1861-CTO, 4Mx • 1862-CTO • 1863-CTO • 1858-AJx, AKx, B4x, B5x • 1859-BAx, BKx, BLx, BMx • 1860-C4x, C5x	13N5179	N

(continued)

No.	FRU	P/N	CRU ID
5	802.11a/b/g antenna, 15.0-in. • 1846-CTO, 3Wx, 4xx • 1847-CTO, 4xx • 1848-CTO, 4xx, • 1849-CTO, 4xx • 1846-Axx • 1847-Axx • 1848-Axx • 1849-Axx • 1858-CTO, 42x, 44x, 45x, 46x, 47x, 48x, 49x, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Kx, 4Lx, 4Mx, 4Nx, 6Kx • 1859-CTO, 43x, 4Ax, 4Bx, 4Hx, 4Px, 4Rx, 4Sx • 1860-CTO, 4Jx, 4Mx, 4Qx • 1861-CTO, 4Mx • 1862-CTO • 1863-CTO • 1858-AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B4x, B5x • 1859-BAx, BKx, BLx, BMx • 1860-C4x, C5x	13N5178	N
6	Inverter card, XGA/SXGA+ • 1846-CTO, 3Wx, 4xx • 1847-CTO, 4xx • 1848-CTO, 4xx, • 1849-CTO, 4xx	27K9952	N
	Inverter card, XGA/SXGA+ • 1858-CTO, 42x, 44x, 45x, 46x, 47x, 48x, 49x, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Kx, 4Lx, 4Mx, 4Nx, 6Kx • 1859-CTO, 43x, 4Ax, 4Bx, 4Hx, 4Px, 4Rx, 4Sx • 1860-CTO, 4Jx, 4Mx, 4Qx • 1861-CTO, 4Mx • 1862-CTO • 1863-CTO	39T0019	N
	Inverter card, XGA/SXGA+ • 1846-CTO, Axx • 1847-CTO, Axx • 1848-CTO, Axx • 1849-CTO, Axx • 1858-AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B4x, B5x • 1859-BAx, BKx, BLx, BMx • 1860-C4x, C5x	39T0368	N

(continued)

No.	FRU	P/N	CRU ID
7	LCD panel, 15.0 SXGA+ (LG, ID TECH) • 1846-CTO, 3Wx, 4xx • 1847-CTO, 4xx • 1848-CTO, 4xx, • 1849-CTO, 4xx • 1846-Axx • 1847-Axx • 1848-Axx • 1849-Axx • 1858-CTO, 42x, 44x, 45x, 46x, 47x, 48x, 49x, 4Cx, 4Dx, 4Ex, 4Fx, 4Gx, 4Kx, 4Lx, 4Mx, 4Nx, 6Kx • 1859-CTO, 43x, 4Ax, 4Bx, 4Hx, 4Px, 4Rx, 4Sx • 1860-CTO, 4Jx, 4Mx, 4Qx • 1861-CTO, 4Mx • 1862-CTO • 1863-CTO • 1858-AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx, AWx, AXx, AYx, B4x, B5x • 1859-BAx, BKx, BLx, BMx • 1860-C4x, C5x	92P6711	N
8	Clear plate for R52	26R8254	N

AC adapters

FRU	P/N	CRU ID
3-pin (72W) slim adapter for PFC model (models xxG, xxM, xxA, xxQ, xxB, xxH, xxC, xxK, xxV)		
ASTEC OP	08K8203	*
DELTA OP	08K8207	*
SANKEN OP	08K8211	*
2-pin (72W) slim adapter for non-PFC model (models xxU, xxF, xxP, xxS, xxY, xxE, xxJ, xxL)		
ASTEC OP	08K8205	*
DELTA OP	08K8209	*
SANKEN OP	08K8213	*

Keyboard

Keyboards for 15.0-in. LCD models

Language	P/N (NMB)	P/N (ALPS)	P/N (Chicony)	CRU ID
Arabic	39T0664	93P4861	39T0786	**
Belgian	39T0659	93P4856	39T0781	
Chinese, Traditional	39T0661	93P4858	39T0783	
Czech	39T0665	93P4862	39T0787	
Danish	39T0652	93P4849	39T0774	
Dutch	39T0649	93P4846	39T0771	
English, U.K.	39T0645	93P4842	39T0767	
English, U.S.	39T0643	93P4840	39T0765	
English, U.S., International	39T0672	—	—	
French, Canadian	39T0646	93P4843	39T0768	
French, Canadian 058	39T0673	93P4869	39T0795	
French, European	39T0648	93P4845	39T0770	
German	39T0647	93P4844	39T0769	
Greek	39T0667	93P4864	39T0789	
Hungarian	39T0666	93P4863	39T0788	
Hebrew	39T0663	93P4860	39T0785	
Italian	39T0653	93P4850	39T0775	
Japanese	39T0644	93P4841	39T0766	
Korean	39T0658	93P4855	39T0780	
Norwegian	39T0651	93P4848	39T0773	
Polish	39T0669	93P4866	39T0791	
Portuguese	39T0656	93P4853	39T0778	
Russian	39T0662	93P4859	39T0784	
Slovak	39T0668	93P4865	39T0790	
Slovenian	39T0670	93P4867	39T0792	
Spanish, European	39T0654	93P4851	39T0776	
Spanish, Latin American	39T0657	93P4854	39T0779	
Swedish or Finnish	39T0650	93P4847	39T0772	
Swiss	39T0655	93P4852	39T0777	
Thai	39T0671	93P4868	39T0793	
Turkish	39T0660	93P4857	39T0782	

Keyboards for 14.1-in. LCD models

Language	P/N (NMB)	P/N (ALPS)	P/N (Chicony)	CRU ID
Arabic	39T0540	13N9978	39T0602	**
Belgian	39T0535	13N9973	39T0597	
Chinese, Traditional	39T0537	13N9975	39T0599	
Czech	39T0541	13N9979	39T0603	
Danish	39T0528	13N9966	39T0590	
Dutch	39T0525	13N9963	39T0587	
English, U.K.	39T0521	13N9959	39T0583	
English, U.S.	39T0519	13N9957	39T0581	
English, U.S., International	39T0548	—	—	
French, Canadian	39T0522	13N9960	39T0584	
French, Canadian 058	39T0549	13N9987	39T0611	
French, European	39T0524	13N9962	39T0586	
German	39T0523	13N9961	39T0585	
Greek	39T0543	13N9981	39T0605	
Hungarian	39T0542	13N9980	39T0604	
Hebrew	39T0539	13N9977	39T0601	
Italian	39T0529	13N9967	39T0591	
Japanese	39T0520	13N9958	39T0582	
Korean	39T0534	13N9972	39T0596	
Norwegian	39T0527	13N9965	39T0589	
Polish	39T0545	13N9983	39T0607	
Portuguese	39T0532	13N9970	39T0594	
Russian	39T0538	13N9976	39T0600	
Slovak	39T0544	13N9982	39T0606	
Slovenian	39T0546	13N9984	39T0608	
Spanish, European	39T0530	13N9968	39T0592	
Spanish, Latin American	39T0533	13N9971	39T0595	
Swedish or Finnish	39T0526	13N9964	39T0588	
Swiss	39T0531	13N9969	39T0593	
Thailand	39T0547	13N9985	39T0609	
Turkish	39T0536	13N9974	39T0598	

Recovery CDs

For Windows XP Professional (R50e series)

Windows XP Professional is preinstalled as the operating system in the following models:

- 1834-K3x, K4x, K7x, K8x, KHx, KPx, KQx, KRx, KSx, KTx, KUx, KVx, KWx, KYx, L3x, L4x, L5x, L7x, L8x, L9x, LBx, LDx, LHx, M2x, M3x, M5x, M7x, M8x, M9x, MAx, MBx, MDx, MEx, MFx, MGx, MMx, MNx, MPx, MQx, MRx, MWx, QAx, R3x, R4x, R5x, R6x, R7x, R9x, RAx, RBx, RDx, REx, RFx, RGx, RNx, RP, RSx, RTx, RUx, RWx, RXx, S4x, S6x, S7x, S9x,
- 1842-MUx, QDx, QEx

Language	P/N	CRU ID
Arabic	39K6289	*
Chinese, Simplified	39K6282	
Chinese, Traditional	39K6283	
Chinese, Traditional (Hong Kong S.A.R.)	39K6284	
Czech	39K6288	
Danish	39K6278	
Dutch	39K6281	
English, U.K.	39K6271	
English, U.S.	39K9505	
Finnish	39K6279	
French	39K6272	
German	39K6273	
Greek	39K6293	
Hebrew	39K6286	
Hungarian	39K6292	
Italian	39K6275	
Japanese	39K6285	
Korean	39K6294	
Norwegian	39K6280	
Polish	39K6287	
Portuguese, Brazilian	39K6276	
Russian	39K6290	
Spanish	39K6274	
Swedish	39K6277	
Turkish	39K6291	

For Windows XP Home Edition (R50e series)

Windows XP Home Edition is preinstalled as the operating system in the following models:

- 1834-K5x, K6x, K9x, KAx, KBx, KCx, KDx, KEx, KFx, KGx, KJx, KLx, KXx, KZx, L2x, L6x, LAx, LCx, LEx, LFx, LGx, M4x, M6x, MCx, MHx, MJx, MSx, MTx, MVx, MXx, Q2x, Q3x, Q4x, Q5x, Q6x, Q7x, QBx, R8x, RCx, RHx, RJx, RKx, RMx, RQx, RRx, RVx, S2x, S3x, S5x, S8x
- 1842-QFx

Language	P/N	CRU ID
Arabic	39K6481	*
Chinese, Simplified	39K6474	
Chinese, Traditional	39K6475	
Chinese, Traditional (Hong Kong S.A.R.)	39K6476	
Czech	39K6480	
Danish	39K6470	
Dutch	39K6473	
English, U.K.	39K6463	
English, U.S.	39K9513	
Finnish	39K6471	
French	39K6464	
German	39K6465	
Greek	39K6485	
Hebrew	39K6478	
Hungarian	39K6484	
Italian	39K6467	
Japanese	39K6477	
Korean	39K6486	
Norwegian	39K6472	
Polish	39K6479	
Portuguese, Brazilian	39K6468	
Russian	39K6482	
Spanish	39K6466	
Swedish	39K6469	
Turkish	39K6483	

For Windows XP Professional (R51e series)

Windows XP Professional is preinstalled as the operating system in the following models:

- 1843-24x, 29x, 2Ex, 2Kx, 2Lx, 2Mx, 2Nx, 2Rx, 2Sx, 2Vx, 2Wx, 35x, 3Cx, 3Dx, 3Fx, 3Gx, 3Hx, 3Mx, 3Rx, 3Sx, 3Tx, 3Ux, 3Vx, 3Wx, 3Yx, 3Zx, 42x, 43x, 44x, 47x, 49x, 4Ax, 4Cx, 4Ex, 4Gx, 4Jx, 4Kx, 4Lx, 4Nx, 4Px, 4Qx, 4Rx, 4Sx, 4Vx, 4Wx, 4Xx, 4Zx, 53x, 54x, 55x, 59x, 5Bx, 5Dx, 5Ex
- 1844-5Gx, 5Hx
- 1845-5Kx

Language	P/N	CRU ID
Arabic	42J4410	*
Chinese, Simplified	42J4403	
Chinese, Traditional	42J4404	
Chinese, Traditional (Hong Kong S.A.R.)	42J4405	
Czech	42J4409	
Danish	42J4399	
Dutch	42J4402	
English, Russia	42J4392	
English, U.K.	42J4391	
English, U.S.	42J4390	
Finnish	42J4400	
French	42J4393	
German	42J4394	
Greek	42J4414	
Hebrew	42J4407	
Hungarian	42J4413	
Italian	42J4396	
Japanese	42J4406	
Korean	42J4415	
Norwegian	42J4401	
Polish	42J4408	
Portuguese, Brazilian	42J4397	
Russian	42J4411	
Slovenian	42J4416	
Spanish	42J4395	
Swedish	42J4398	
Turkish	42J4412	

For Windows XP Home Edition (R51e series)

Windows XP Home Edition is preinstalled as the operating system in the following models:

- 1843-22x, 23x, 25x, 27x, 2Ax, 2Bx, 2Dx, 2Fx, 2Hx, 2Jx, 2Px, 2Qx, 2Tx, 2Ux, 2Xx, 2Yx, 2Zx, 33x, 34x, 36x, 3Ax, 3Bx, 3Ex, 3Jx, 3Kx, 3Lx, 3Nx, 3Px, 3Qx, 3Xx, 48x, 4Bx, 4Dx, 4Fx, 4Hx, 4Mx, 4Ux, 4Yx, 52x, 5Ax, 5Cx
- 1844-5Fx, 5Jx

Language	P/N	CRU ID
Arabic	42J4626	*
Chinese, Simplified	42J4619	
Chinese, Traditional	42J4620	
Chinese, Traditional (Hong Kong S.A.R.)	42J4621	
Czech	42J4625	
Danish	42J4615	
Dutch	42J4618	
English, Russia	42J4608	
English, U.K.	42J4607	
English, U.S.	42J4606	
Finnish	42J4616	
French	42J4609	
German	42J4610	
Greek	42J4630	
Hebrew	42J4623	
Hungarian	42J4629	
Italian	42J4612	
Japanese	42J4622	
Korean	42J4631	
Norwegian	42J4617	
Polish	42J4624	
Portuguese, Brazilian	42J4613	
Russian	42J4627	
Spanish	42J4611	
Swedish	42J4614	
Turkish	42J4628	

For Windows XP Professional (R52 series)

Windows XP Professional is preinstalled as the operating system in the following models:

- 1846-2Hx, 2Jx, 3Vx, 3Wx, 4Cx, 4Dx, 4Ex, 4Lx, 52x, 53x, 54x, 55x, 57x,,58x, 59x, 5Ax, 5Hx, 5Jx, 5Kx, 5Lx, 5Rx, 62x, 63x, 64x, 66x, 67x, 68x, 69x, 6Bx, 6Cx, 6Ex, 6Ex, 6Gx, 6Hx, 6Kx, 6Lx, 6Nx, 6Px, 6Qx, 6Sx, 6Tx, 6Ux
- 1847-22x, 23x, 24x, 25x, 26x, 27x, 28x, 29x, 2Ax, 2Bx, 2Cx, 2Dx, 2Ex, 2Fx, 2Gx, 32x, 33x, 34x, 35x, 36x, 37x, 38x, 39x, 3Cx, 3Dx, 3Fx, 3Gx, 3Jx, 3Kx, 3Lx, 3Nx, 3Px, 3Rx, 3Sx, 3Tx, 3Ux, 42x, 43x, 44x, 45x, 46x, 47x, 48x, 4Bx
- 1848-22x, 23x, 24x, 25x, 26x, 27x, 2Fx, 2Gx, 32x, 33x, 34x, 35x, 36x, 37x, 42x, 43x, 44x, 45x, 4Bx
- 1849-4Px, 4Qx, 4Rx, 5Sx, 5Tx, 5Ux, 6Vx
- 1850-22x
- 1870-22x
- 1858-47x, 6Kx, 6Mx, 6Nx, 6Px, 6Sx
- 1859-28x, 2Ax, 2Hx, 3Mx, 3Rx, 3Sx, 4Ax, 4Rx, 4Sx, 4Yx, 55x, 5Dx, 5Rx, 6Vx, 6Wx
- 1860-25x, 26x, 2Bx, 2Fx, 2Kx, 2Lx, 2Mx, 2Nx, 2Tx, 2Yx, 32x, 3Bx, 3Ex, 4Jx, 4Mx, 4Qx, 56x, 57x, 5Bx, 5Cx, 5Ex, 5Hx, 5Kx, 5Sx, 5Ux, 5Zx, 69x, 6Fx, 6Gx, 6Jx
- 1861-25x, 26x, 2Bx, 2Fx, 2Kx, 2Yx, 32x, 3Bx, 3Ex, 3Tx, 3Ux, 4Mx, 56x, 5Ex, 5Sx, 69x, 6Fx, 6Gx, 6Jx
- 1862-2Cx

Language	P/N	CRU ID
Arabic	39K7811	*
Chinese, Simplified	39K7803	
Chinese, Traditional	39K7804	
Chinese, Traditional (Hong Kong S.A.R.)	39K7805	
Czech	39K7810	
Danish	39K7799	
Dutch	39K7802	
English, U.K.	39K7792	
English, U.S.	39K7791	
Finnish	39K7800	
French	39K7793	
German	39K7794	
Greek	39K7815	
Hebrew	39K7808	
Hungarian	39K7814	
Italian	39K7796	
Japanese	39K7806	
Korean	39K7807	
Norwegian	39K7801	
Polish	39K7809	
Portuguese, Brazilian	39K7797	
Russian	39K7812	
Spanish	39K7795	
Swedish	39K7798	
Turkish	39K7813	

- 1846-84x, 8Ax, 96x, 98x, 99x, 9Ax, 9Bx, 9Cx, 9Ex, 9Fx, 9Gx, A2x, A3x, A6x, A7x, A8x, A9x, ABx, ACx
- 1847-82x, 83x, 8Ex, 8Fx, 8Gx, 8Hx, 8Jx, 8Kx, 92x, 93x, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, AEx, AFx, AGx, AHx, AJx
- 1848-82x, 83x, 92x, 93x
- 1849-8Cx, 8Dx, 8Lx, 8Mx, 8Nx, 9Ux, 9Vx, 9Wx, ADx, AKx, ALx
- 1858-9Bx, 9Dx, 9Ex, 9Fx, 9Gx, 9Hx, 9Kx, 9Lx, 9Mx, 9Nx, 9Px, 9Qx, 9Rx, 9Sx, 9Tx, 9Ux, 9Vx, 9Wx, 9Xx, 9Yx, 9Zx, A4x, A5x, A6x, A9x, AAx, ADx, AEx, AFx, AJx, AKx, ALx, AMx, ANx, APx, AQx, ARx, ASx, ATx, AUx, AVx
- 1859-B6x, B7x, B8x, B9x, BAx
- 1860-9Fx, 9Gx, BPx, BQx, BRx, BSx, BTx, BUx, BVx, BWx, BXx, BYx, BZx, C2x, C3x, C4x, C5x, C6x, C7x, C8x, C9x, CAx, CBx,
- 1861-9Gx, BUx, BZx

Language	**P/N**	**CRU ID**
Arabic	39K8507	*
Chinese, Simplified	39K8499	
Chinese, Traditional	39K8500	
Chinese, Traditional (Hong Kong S.A.R.)	39K8501	
Czech	39K8506	
Danish	39K8495	
Dutch	39K8498	
English, Russia	39K9835	
English, U.K.	39K8488	
English, U.S.	39K8487	
Finnish	39K8496	
French	39K8489	
German	39K8490	
Greek	39K8511	
Hebrew	39K8504	
Hungarian	39K8510	
Italian	39K8492	
Japanese	39K8502	
Korean	39K8503	
Norwegian	39K8497	
Polish	39K8505	
Portuguese, Brazilian	39K8493	
Russian	39K8508	
Slovenian	39K9866	
Spanish	39K8491	
Swedish	39K8494	
Turkish	39K8509	

For Windows XP Home Edition (R52 series)

Windows XP Home Edition is preinstalled as the operating system in the following models:

- 1846-4Fx, 4Gx, 4Hx, 4Jx, 4Kx, 4Mx, 4Nx, 56x, 5Bx, 5Cx, 5Dx, 5Ex, 5Fx, 5Gx, 5Mx, 5Nx, 5Px, 5Qx, 65x, 6Ax, 6Fx, 6Jx, 6Mx, 6Rx
- 1847-3Ax, 3Bx, 3Ex, 3Hx, 3Mx, 3Qx, 49x, 4Ax
- 1858-22x, 29x, 2Sx, 2Wx, 2Vx, 2Zx, 33x, 37x, 38x, 3Cx, 3Dx, 3Hx, 3Jx, 3Kx, 3Nx, 3Px, 42x, 44x, 49x, 4Dx, 4Fx, 4Gx, 4Kx, 4Lx, 4Tx, 4Ux, 4Vx, 4Wx, 53x, 59x, 5Gx, 5Nx, 5Px, 5Xx, 64x, 67x, 6Bx, 6Hx, 6Rx, 6Tx, 6Ux
- 1860-58x, 5Gx

Language	P/N	CRU ID
Arabic	39K8011	*
Chinese, Simplified	39K8003	
Chinese, Traditional	39K8004	
Chinese, Traditional (Hong Kong S.A.R.)	39K8005	
Czech	39K8010	
Danish	39K7999	
Dutch	39K8002	
English, U.K.	39K7992	
English, U.S.	39K7991	
Finnish	39K8000	
French	39K7993	
German	39K7994	
Greek	39K8015	
Hebrew	39K8008	
Hungarian	39K8014	
Italian	39K7996	
Japanese	39K8006	
Korean	39K8007	
Norwegian	39K8001	
Polish	39K8009	
Portuguese, Brazilian	39K7997	
Russian	39K8012	
Spanish	39K7995	
Swedish	39K7998	
Turkish	39K8013	

- 1846-85x, 86x, 87x, 88x, 89x, 8Bx, 94x, 95x, 97x, 9Dx, 9Hx, A4x, A5x, AAx
- 1858-92x, 93x, 94x, 96x, 96x, 97x, 98x, 99x, 9Ax, 9Jx, A2x, A3x, A7x, ABx, ACx, AGx, AHx, AXx, AYx, CCx

Language	P/N	CRU ID
Arabic	39K8707	*
Chinese, Simplified	39K8699	
Chinese, Traditional	39K8700	
Chinese, Traditional (Hong Kong S.A.R.)	39K8701	
Czech	39K8706	
Danish	39K8695	
Dutch	39K8698	
English, Russia	39K9843	
English, U.K.	39K8688	
English, U.S.	39K8687	
Finnish	39K8696	
French	39K8689	
German	39K8690	
Greek	39K8711	
Hebrew	39K8704	
Hungarian	39K8710	
Italian	39K8692	
Japanese	39K8702	
Korean	39K8703	
Norwegian	39K8697	
Polish	39K8705	
Portuguese, Brazilian	39K8693	
Russian	39K8708	
Spanish	39K8691	
Swedish	39K8694	
Turkish	39K8709	

Miscellaneous parts

FRU	P/N	CRU ID
Screw kit (including nylon-coated screws): • M2.5 × 4.8 mm (black), bind-head (8) • M2 × 4 mm (black), bind-head (14) • M2 × 6 mm (black), bind-head (4) • M2 × 12 mm (black), flat-head (17) • M2 × 10 mm (black), flat-head (9) • Hex stud (4) • M2 × 18.9 mm, special shape (1) • M3 × 3 mm (PHILLIPS/slotted) (1) • M2 × 3 mm (silver), small flat-head (LCD unit hinge) (8) • Screw caps (not painted) • Screw caps, square • Screw caps, USB • Screw caps, rear, oval	13N5168	N
Base miscellaneous parts for R50e: • Eng Spec • Knob battery lock L • HDD shock absorber 14/15 • HDD shock absorber 14 • Latch battery lock R • Latch battery lock L • Link battery lock • Insulation, bottom • Insulation sheet • Insulation, louver • Lid PCMCIA • Puller • Pull lever • Rubber foot (rear) • Rubber foot (front) • Pull lever spring • Screw cap square • Screw cap rear oval • Security plate • Sheet, HDD rubber 14 • Sheet, HDD rubber 15 • Slide lever • Slide lever spring • Spring battery lock • Spring Lid PCMCIA	13N5166	

(continued)

FRU	P/N	CRU ID
Base miscellaneous parts for 1846, 1847, 1848, 1849: • Spring Lid PCMCIA • Puller • Latch battery lock R • Link battery lock • Sheet, HDD rubber 15 • Security plate • Rubber foot (rear) • Spring battery lock • Rubber foot (front) • Sheet, HDD rubber 14 • Screw cap rear oval • HDD shock absorber 14/15 • HDD shock absorber 14 • Shield, battery 14 • Shield, battery 15 • Eng Spec • Slide lever spring • Insulation, louver • Pull lever spring • Screw cap square • Lid PCMCIA • Insulation, bottom • Insulation sheet • Latch battery lock L • Knob battery lock L • Slide lever • Pull lever	26R8527	N

(continued)

FRU	P/N	CRU ID
Base miscellaneous parts for 1858, 1859, 1860, 1861: • Cover, PC Card slot • Spring, PC Card slot cover • Rubber foot (rear) • Rubber foot (front) • Insulation, bottom • Insulation sheet • Insulation, louver • Battery lock knob L • Battery lock latch L • Battery lock latch R • Battery lock link • Spring, battery lock • Slide lever • Slide lever spring • Pull lever • Pull lever spring • Puller • HDD rubber 14/15 • Sheet, HDD rubber 15 • Sheet, HDD rubber 14 • HDD rubber 15 • HDD rubber 14 • HDD shock absorber 14/15 • HDD shock absorber 14 • Security plate • Shield, battery 14-CR • Shield, battery 15	13R2693	N

(continued)

FRU	P/N	CRU ID
System board miscellaneous parts for R50e: • Antenna Cable Guide Y5/K5 • Blank Cap, IEEE1394 • Bracket, Cable Hook • Bracket M7 14 - CR • Bracket M7 15 - CR • Bracket, Joint 14 - CR • Bracket, Joint 15 - CR • Bracket - VGA connector 14 - CR • Bracket - VGA connector 15 • Bracket I/O Plate 14/15 - CR • Bracket Structure 14/15 • Cable RJ11- PLANAR DOCKING • Connector Bag • Cu Tape, VGA Cable • DC in Cable • Eng Spec • Ferrite Core RH • HDD Conn. Retainer - CR • Retainer, LCD Cable 14/15 - CR • Spacer, IEEE1394 - CR	13R2821	N
System board miscellaneous parts for R52: • Antenna Cable Guide Y5/K5 • Blank Cap, IEEE1394 • Bracket, Cable Hook • Bracket M7 14 - CR • Bracket M7 15 - CR • Bracket, Joint 14 - CR • Bracket, Joint 15 - CR • Bracket - VGA connector 14 - CR • Bracket - VGA connector 15 • Bracket I/O Plate 14/15 - CR • Bracket Structure 14/15 • Cable RJ11- PLANAR DOCKING • Connector Bag • Cu Tape, VGA Cable • DC in Cable • Eng Spec • Ferrite Core RH • HDD Conn. Retainer - CR • Retainer, LCD Cable 14/15 - CR • Spacer, IEEE1394 - CR	13N5165	

(continued)

FRU	P/N	CRU ID
14.1-in. LCD miscellaneous parts: • (*k*) LCD latch assembly, 14 (L) • (*l*) LCD latch, 14 (R) • (*m*) Lower cable bush, 14 • (*n*) Upper cable bush, 14 • Finger, LCD FPC 14 • Screw caps (not painted) • Screw caps, square **Note:** Italicized letters in parentheses are references to the exploded view on page 220.	13N5169	N
15.0-in. LCD miscellaneous parts: • (*k*) LCD latch assembly, 15 (L) • (*l*) LCD latch, 15 (R) • (*m*) Lower cable bush, 15 • (*n*) Upper cable bush, 15 • LCD FPC tape • Finger, LCD FPC 15 • Screw caps (not painted) • Screw caps, square	13N5170	N
System miscellaneous parts for R50e: • (*a*) Cable, RJ11-docking connector on system board • (*e*) DC in cable • (*i*) Bracket, I/O plate 14/15, CR • (*h*) Bracket structure 14/15 • (*b*) Antenna cable guide • (*c*) EMI spring, CDC • Connector bag • Blank cap, IEEE1394 connector • Spacer, IEEE1394 connector, CR • (*j*) Retainer, LCD cable 14/15, CR • (*g*) Bracket, VGA connector 14, CR • (*g*) Bracket, VGA connector 15, CR • (*f*) Bracket, cable hook • HDD connector retainer, CR • Bracket M7 14, CR • Bracket M7 15, CR • (*d*) Heatsink M9 14 • (*d*) Heatsink M9 15, CR • Ferrite core, RH • Ferrite core, LH • Bracket, joint 14, CR • Bracket, joint 15, CR • Cu tape, VGA cable **Note:** Italicized letters in parentheses are references to the exploded view on page 160.	13R2875	N

(continued)

FRU	P/N	CRU ID
System miscellaneous parts for 1846, 1847, 1848, 1849 • (*a*) Cable, RJ11-docking connector on system board • (*e*) DC in cable • (*i*) Bracket, I/O plate 14/15, CR • (*h*) Bracket structure 14/15 • (*b*) Antenna cable guide • (*c*) EMI spring, CDC • Connector bag • Blank cap, IEEE1394 connector • Spacer, IEEE1394 connector, CR • (*j*) Retainer, LCD cable 14/15, CR • (*g*) Bracket, VGA connector 14, CR • (*g*) Bracket, VGA connector 15, CR • (*f*) Bracket, cable hook • HDD connector retainer, CR • Bracket M7 14, CR • Bracket M7 15, CR • (*d*) Heatsink M9 14 • (*d*) Heatsink M9 15, CR • Ferrite core, RH • Ferrite core, LH • Bracket, joint 14, CR • Bracket, joint 15, CR • Cu tape, VGA cable **Note:** Italicized letters in parentheses are references to the exploded view on page 160.:	26R9079	N
System miscellaneous parts for 1858, 1859, 1860, 1861: • (*a*) Cable, RJ11-docking connector on system board • (*b*) Antenna cable guide • (*c*) EMI spring, CDC • (*e*) DC in cable • (*f*) Bracket, cable hook • HDD connector retainer-CR • (*g*) Bracket, VGA connector 14 • (*g*) Bracket, VGA connector 15 • (*h*) Bracket structure 14/15 • (*i*) Bracket, I/O plate 14/15-CR • Connector bag • Blank cap, IEEE1394 connector • Spacer, IEEE1394 connector-CR • (*j*) Retainer, LCD cable 14/15-CR • Bracket M7 14-CR • Bracket M7 15 • Ferrite core, LH • Bracket, joint 14-CR • Bracket, joint 15-CR • Cu tape, VGA cable **Note:** Italicized letters in parentheses are references to the exploded view on page 160.	13R2694	N

Optional FRUs

FRU	P/N	CRU ID
128-MB DDR SDRAM SO DIMM (PC2100)	10K0029	*
256-MB DDR SDRAM SO DIMM (PC2100)	10K0031	*
512-MB DDR SDRAM SO DIMM (PC2100)	10K0033	*
1-GB DDR SDRAM SO DIMM (PC2100)	10K0035	*
Ultrabay Enhanced hard disk drive adapter	62P4553	*
Optional adapter for 12.7mm bay	13N5113	*
Ultrabay Enhanced Li Polymer battery (2nd bay battery, 3 cell), SANYO (WW)	08K8191	*
Video cable	27L0531	*
ThinkPad Dock II	67P9010	*
ThinkPad Dock II top cover and screw kit	46P3085	N
ThinkPad Dock II PCI cover	46P3086	*
ThinkPad Mini Dock	67P9011	*
ThinkPad Mini Dock AC adapter (2 pin, 120 W)		*
DELTA	02K7086	
LITEON	02K7092	
ThinkPad Mini Dock AC adapter (3 pin, 120 W)		*
DELTA	02K7094	
LITEON	02K7096	
ThinkPad Port Replicator II	74P6735	*
ThinkPad Slim Drive Adapter for Ultrabay 2000	62P4556	*
Multiple battery charger	02K6642	*
External diskette drive cable	27L0525	*
Diskette drive (TEAC)	08K9606	*
Diskette drive (SONY)	08K9607	*

Common parts list

Tools

Tool	P/N
Triconnector wrap plug	72X8546
PC test card	35G4703
PCI-Express/USB Wrap card	27K9813
Audio wrap cable	66G5180
USB parallel test cable	05K2580
Screwdriver kit	95F3598
Torque screwdriver	05K4695
5-mm socket wrench	05K4694
Screwdriver	27L8126
Removal tool antenna RF connector	08K7159
USB floppy disk drive tool kit	27L3452
ThinkPad Hardware Maintenance Diskette Version 1.73 or later **Note:** Download the file from the following Web site: `http://www.lenovo.com/think/spm`	—

Power cords (system)

A ThinkPad power cord for a specific country or region is usually available only in that country or region:

For 2-pin power cords:

Region	P/N	CRU ID
Canada, U.S. • models -CTO, xxF, xxL, xxS, xxU	13H5264	*
Japan • models -Exx, Jxx	74P4331	
Argentina • models -CTO, xxY	36L8870	
Brazil • models -CTO, xxP	49P2095	

For 3-pin power cords:

Region	P/N	CRU ID
Australia, New Zealand • models -CTO, xxG, xxM	39M4960	*
Taiwan, Thailand • models -CTO, xxV	76H3516	
Italy • models -CTO, xxG	76H3530	
Denmark • models -CTO, xxG	76H3520	
U.K., China (Hong Kong S.A.R.) • models -CTO, xxB, xxG, xxH	76H3524	
European countries • models -CTO, xxG	76H3518	
India, South Africa • models -CTO, xxG	76H3522	
Israel • models -CTO, xxG	76H3532	
Korea • models -xxK	76H3535	
China (P.R.C.) (other than Hong Kong S.A.R.) • models -xxC	02K0539	
Switzerland • models -CTO, xxG	76H3528	

Power cords (ThinkPad Dock II)

A ThinkPad power cord for a specific country or region is usually available only in that country or region:

For 3-pin power cords:

Region	P/N	CRU ID
Argentina	36L8868	*
Australia, New Zealand	75H8988	
Brazil	49P2101	
Canada, Thailand, U.S.	75H8989	
Denmark	75H8992	
European countries	75H8990	
India, South Africa	75H8993	
Israel	75H8999	
Italy	75H8998	
Japan	75H8996	
Korea	76H3536	
China (P.R.C.) (other than Hong Kong S.A.R)	02K0540	
Switzerland	75H8997	
U.K.	75H8994	

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